ACT at Work: Feasibility Study of an Acceptance Based Intervention to Promote Mental Well-being and Work Engagement in Mental Health Service Staff.

CLINICAL RESEARCH PORTFOLIO

VOLUME I

(VOLUME II bound separately)

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CHAPTER 1: SYSTEMATIC REVIEW

A Systematic Review Assessing 'Risk of Bias' in Studies of Mindfulness-based Group Interventions for Health Professionals

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Abstract

Background: Literature identifies stressors and contextual challenges health professionals experience as a part of their job. Stress and burnout are widely recognised, impacting negatively on the individual and the organisation. Literature underscores the need for stress management initiatives. Mindfulness interventions have been administered as a means of decreasing burnout, increasing satisfaction and improving patient care.

Objective: This systematic review aimed to critically appraise published studies evaluating mindfulness-based group interventions in health professionals. There is a focus on evaluating the potential risk of bias in each study's methodology, through administration of the Cochrane Risk of Bias Tool, advocated by PRISMA.

Method: Research literature published between 2000 and 2013 was searched and the results screened against inclusion criteria to identify mindfulness group interventions implemented with health professionals. Eighteen studies were suitable for inclusion, including, both randomised and non-randomised designs.

Results/Conclusions: The studies had a high degree of risk of bias across all domains (selection, performance, detection, attrition & reporting). There was a high risk of bias for participant selection, intervention implementation, and how outcomes are measured and reported. Relatively speaking, studies' reporting of results appears to be more rigorous. This review provides recommendations to increase the methodological rigour of future research.

Highlights

- Evaluated risk of bias in studies focussed on administering mindfulness interventions with health professionals.
- Evaluation was conducted utilising the Cochrane Risk of Bias Tool.
- Studies reveal a high degree of risk across all domains.
- Recommendations suggest ways to enhance future research through methodological rigour.

Key Words: *Mindfulness, occupation, work-based, stress; burnout; work engagement.*

Introduction

There is a plethora of literature identifying the stressors and contextual challenges health professionals experience as part of their job. Studies highlight stressors intrinsic to a health professional's caring role, such as providing intense emotional support, and dealing daily with pain, loss and traumatic life events (Cohen-Katz, Wiley, Capuano, Baker & Shapiro, 2004; Aiken, Clarke & Sloane, 2001; Aiken, Clarke, Sloane, Sochalski & Silber, 2002; Decker, 1997). In addition, they note the difficult contextual demands experienced, such as extended working hours, heavy workload, and feelings of a lack of power and control (Cohen-Katz et al., 2004; Aiken et al., 2001; Aiken et al., 2002; Decker, 1997). Other studies highlight the lack of legalistic frameworks, absence of supervision, role conflict and ambiguity (Korkeila et al., 2003; Edwards, Burnard, Coyle, Fothergill & Hannigan, 2000). Additional challenges relate to the way in which service users present i.e. enduring relapsing illness, suicide risk, threatened and actual violence (Korkeila et al., 2003; Edwards et al., 2000). These stressors are present across professional disciplines and staff levels (Pipe, et al., 2009; Shirey, 2006). Idiosyncratic stressors faced by those in clinical training include feeling burdened with the responsibility of patients, while suffering anxiety and tension due to their perceived lack of knowledge and experience (Randle, 2003; Kang, Choi & Ryu, 2009). Rosenzweig, Reibel, Greeson, Brainard and Hojat (2003) highlight the co-occurring academic pressures evident while encountering human suffering and mortality. Furthermore, the frequently changing health care environment can be a stressor. Staff are required to maintain high-quality care while adapting to an evolving system. Time pressures and increasing demands create additional stress (Aiken et al., 2001; Galantino, Baime, Maguire, Szapary & Farrar, 2005; Goodman & Schorling, 2012), which can be exacerbated by staff shortages (Cohen-Katz et al., 2004).

Clinician Stress and Burnout

One area linked to stress that has received particular attention is 'burnout'. The term burnout was introduced to describe physical and emotional exhaustion in healthcare facilities (Freudenberger, 1974; Wood & Killion, 2007). The literature is replete with claims that burnout is an endemic problem in health professionals. It is widely recognised in occupations that have intense involvement with people who have psychological, social and/or physical problems (Maslach & Jackson, 1981). It is reported that 25% of health professionals experience it (Da Silva & Menezes, 2008). Burnout is a syndrome with three dimensions: emotional exhaustion, feelings of cynicism and detachment, and a sense of ineffectiveness and lack of accomplishment (Maslach, Schaufeli & Lieter, 2001). It can impact on individuals from across the health professions including physicians (Shanafelt, Sloan & Habberman, 2003), nurses (Vahey, Aitken, Sloane, Clarke & Vargas, 2004) and psychologists (Rupert & Morgan, 2005). Research has indicated that over 40% of nurses report burnout and 60% of psychologists admit to working when they have viewed themselves as distressed to the point of clinical ineffectiveness (Irving, Dobkin & Park, 2009).

The widely noted consequences of stress and burnout are devastating at an organisational and individual level. Burnout is associated with job turnover, absenteeism (Ducharme, Knudsen & Roman, 2008; Maslach & Jackson, 1981) and a premature exit from the profession (Aiken et al., 2001; Cohen-Katz et al., 2004). Consequently, this can cause a decline in the stability of the workforce (Krasner et al., 2009). Of those who remain in employment, burnout has been linked to poorer quality of life (Krasner et al., 2009). Research has identified a link between burnout, personal distress and physical illness i.e. physical exhaustion, insomnia, drug/alcohol use, and marital/family problems (Cohen-Katz et al., 2004; Irving et al., 2009; Maslach et al., 2001; Maslach & Jackson, 1981). There is also evidence of an associated decrease in the quality of care and service, lower productivity, reduced commitment to the job, negative impact on colleagues (Maslach et al., 2001; Cohen-Katz et al., 2004), and low morale (Maslach & Jackson, 1981; Cushway & Tyler, 1996). In terms of a clinician's skills, burnout is associated with impaired attention and concentration, and a reduced capacity to make decisions, communicate effectively, convey empathy, and establish meaningful relationships (Irving et al., 2009). Research has also highlighted an association with burnout and decreased patient satisfaction (Irving et al., 2009; Leiter, Harvie & Frizzell, 1998; Vahey et al., 2004) with suboptimal patient care and longer patient-reported recovery (Irving et al., 2009).

Health and Well-being

Initial conceptualisations of burnout suggested that it is the product of personal and environmental factors (Leiter & Maslach, 1988). However, research has highlighted that burnout is more of a function of the situation than the person (Cohen-Katz et al., 2004; Maslach, 2003; Poulin, Mackenzie, Soloway & Karayolas, 2008). Maslach (2003) consistently finds burnout alongside work factors such as difficult job demands, imbalance between high demands and low resources, and presence of conflict between people, role demands and/or values. The most common stress management approaches reported are person-centred i.e. removing individuals from jobs, changing work behaviour and training to strengthen interpersonal responses (Maslach, 2003). This review focuses on person-centred strategies; however, it is also important to be mindful of the contextual and organisational factors.

Research highlights few programmes aimed at preventing stress and/or promoting mental well-being. Of those that do exist, few evaluate the intervention efficacy (Krasner et al., 2009; Mackenzie, Poulin & Seidman-Carlson, 2006; Maslach, 2003; Poulin et al., 2008). Literature highlighting the stressors encountered by health practitioners underscores the need to include stress management initiatives (Beddoe & Murphy, 2004; Irving et al., 2009; Kang et al., 2009; Shapiro, Astin, Bishop & Cordova, 2005).

Mindfulness

In recent years, 'mindfulness' has been proposed as a means of decreasing burnout, increasing satisfaction and improving patient care (Goodman & Schorling, 2012; Epstein, 1999; Ludwig & Kabat-Zinn, 2008; Shanafelt, 2009). To date, most mindfulness interventions used in the workplace have been delivered in group format. Mindfulness is a way of 'paying attention' originating in Eastern meditation practices (Baer, 2003). Kabat-Zinn (2003) defines mindfulness as: "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (p. 145). Mindfulness "includes an affectionate, compassionate quality within the attending, a sense of openhearted, friendly presence and interest" (Kabat-Zinn, 2003, p. 145). Irving et al. (2009) added: "attention rests with various stimuli, including breath, bodily sensations, perceptions (sights and sounds) as well as cognitions and emotions", highlighting the importance of formally learning "how to be awake or fully present in the now" (p. 62). This is developed primarily through practising meditation, defined as the intentional self-regulation of attention from moment to moment (Baer, 2003; Irving et al., 2009; Kabat-Zinn, 1982). There are formal and informal practices which engender sustained attention, whilst provoking qualities such as patience, trust and acceptance (Baer, 2003; Poulin et al., 2008).

In the last 40 years, Buddhist traditions have become common in the West (Baer, 2003; Collard, Avny & Boniwell, 2008; Kabat-Zinn, 2003; Poulin et al., 2008). The purpose is to alleviate suffering and cultivate compassion; therefore, it could play a helpful role for health professionals (Ludwig & Kabat-Zinn, 2008).

Rationale for Current Review

A systematic review of the methodological strengths and weaknesses of research investigating mindfulness-based group intervention for health professionals has not been conducted. It is important to evaluate the credibility of claims made about the efficacy of mindfulness for reducing work-related stress and improving work performance. A review can inform methodological design for future research (Higgins, Altman & Sterne, 2008). This review will evaluate the internal validity of the various methodological designs. That is, whether each study answers the research questions posed and whether it is free from bias or not.

The PRISMA (Preferred Reporting Items for Systematic Reviews) outlines the importance of assessing 'risk of bias' when evaluating studies included in a systematic review (Liberati et al., 2009). Reviewers are encouraged to consider which risks of bias have a bearing on results. Caution is identified with utilising individual components, checklists and scales to assess the risk of bias (Deeks et al., 2003; Higgins et al., 2008; Liberti et al., 2009). PRISMA advocate the Cochrane risk of bias tool (Higgins et al., 2008). This consists of five domains for which there is empirical evidence of their biasing influence on the estimates of an intervention's effectiveness in clinical

trials i.e. selection bias, performance bias, detection bias, attrition bias and reporting bias (Liberti et al., 2009; Higgins et al., 2008).

Aims and Objectives

To critically appraise current published studies evaluating mindfulness-based group interventions in health professionals. Specifically, to evaluate the potential risk of bias inherent in each study's methodology.

Search Strategy

Firstly, a search of the Database of Abstracts of Reviews of Effects and the Cochrane Database of Systematic Reviews was completed to identify existing evidence-based guidelines, literature reviews, systematic reviews or meta-analyses. Thereafter, a systematic, explicit and vigorous search of databases; CINAHL, EBSCO (including psychological databases, Psychinfo & Psychological and Behavioural Science Collection) and MEDLINE (Web of Knowledge) was conducted utilising pre-determined criteria. A search was completed for studies published in English (or interpreted versions) between January 2000 and March 2013. The following search criteria was utilised: ***mindful**** combined with ***employ**** or ***work based*** or ***work site*** or ***occupation**** combined with ***burnout*** or ***stress*** or ***work engagement***. An additional search of the reference lists on identified articles was conducted. Finally, the 'Mindfulnet' website (www.mindfulnet.org) was reviewed for relevant research. All titles and abstracts were reviewed. If studies met inclusion criteria they were read in full.

Eligibility

All papers retrieved from database and journal searches were examined using the following inclusion criteria. Those not meeting criteria were excluded.

Studies were eligible if they:

1. Implemented and evaluated a mindfulness-based intervention, where mindfulness was operationalised as:
    a. Moment to moment awareness
    b. Non-judgmental attitude
    c. Teaching of formal meditation techniques
    d. Stressing the importance of daily and systematic practice
2. Included a health profession population (including post-graduate health professionals in training).
3. Completed intervention in a group format.
4. Used standardised and validated quantitative outcome measures.
5. Provided and assessed post-intervention data.
6. Were published.

7. Utilised an experimental design (including quantitative sections of mixed methodological studies).

Studies were excluded if:

1. The sample included work populations other than health professionals i.e. teachers.
2. The sample included undergraduate health-related students, mixed populations i.e. health professionals and university staff.
3. Measures were exclusively administered on patient population.
4. There was no data, included preliminary data or employed a single qualitative methodology.
5. Not published in a peer-reviewed publication, i.e. conference abstracts, book chapters and dissertations.
6. Not reported in English.
7. Mindfulness was delivered in the broader context of Acceptance and Commitment Therapy.

Assessing Risk of Bias

The Cochrane 'Risk of Bias' Tool (Higgins et al., 2008) was used to evaluate the methodologies of eligible studies. It is a two-part tool, addressing five domains, in which there are seven areas: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting and 'other issues'. In this review, 'other issues' included 'fidelity of intervention' under the domain of performance bias. The tool is summarised in Appendix 1.2. Each domain has a specific section in the risk of bias table. Each section outlines the factors to report to support a judgement and a space to assign a judgement of 'low', 'high' or 'unclear' risk of bias for that entry. Please see Appendix 1.3 for judgement criteria.

The author and additional second rater independently screened studies for risk of bias utilising the same rating tool. The second rater received clinical doctorate training to conduct a systematic review. Agreement between raters reached 93%. Disagreement was resolved through discussion and 100% agreement was reached.

Description of Included Studies

A study selection flow diagram is outlined in Figure 1. Of the 59 studies identified through the database and three through other sources, 18 met inclusion criteria. Overall, studies represented a total sample of n=1006. The mean was 38 years of age (Range: 22 – 50, SD = 10.10) for studies that recorded age (n=10). Characteristics of included studies are shown in summary Table 1.

[Insert Figure 1 here]

[Insert Table 1 here]

Study Design: Three studies were randomised controlled trials (RCTs) (Cohen-Katz et al., 2004; Pipe et al., 2009; Shapiro et al., 2005); one of which (Shapiro et al., 2005) was described as a pilot study. Two were quasi-experimental studies (Kang et al., 2009; Mackenzie et al., 2006), one noting it is a pilot study (Mackenzie et al., 2006). The remaining 13 are non-randomised studies. Nine used a pre-post design (Beddoe & Murphy, 2004; Brady, O'Connor, Burgermeister & Hanson, 2012; Galantino et al., 2005; Goodman & Schorling, 2012; Krasner et al., 2009; Poulin et al., 2008; Rimes & Wingrove, 2011; Rosenzweig et al., 2003; Shapiro, Brown & Biegel, 2007) and four used a repeated measure design (Collard et al., 2008; Ruths et al., 2012; Schenström, Ronnberg & Bodlund, 2006; Zoysa, Ruths, Walsh & Hutton, 2012); of these, two indicated they are pilot studies (Beddoe & Murphy, 2004; Schenström et al., 2006).

Ten studies did not utilise a control group (Beddoe & Murphy, 2004; Brady et al., 2012; Collard et al., 2008; Galantino et al., 2005; Goodman & Schorling, 2012; Krasner et al., 2009; Rimes & Wingrove, 2011; Ruths et al., 2012; Schenström et al., 2006; Zoysa et al., 2012). Schenström et al. (2006) indicated that a planned controlled comparison could not be carried out due to "practical difficulties", which they did not elaborate on. Eight studies employed a control group, see Table 1, Column C, for various methods. Two studies highlighted specific difficulties with recruitment and randomisation of a control group (Mackenzie et al., 2006; Poulin et al., 2008). Poulin et al. (2008) could not randomise clients due to scheduling constraints and shift patterns. Mackenzie et al. (2006) reported difficulties adhering to leave requirements and had to "add controls". Therefore, applying rigorous research methodology to a real world setting can be challenging.

Recruitment: Of the 18 studies, six did not describe recruitment procedures (Beddoe & Murphy, 2004; Brady et al., 2012; Galantino et al., 2005; Kang et al., 2009; Mackenzie et al., 2006; Poulin et al., 2008). Five (Beddoe & Murphy, 2004; Collard et al., 2008; Rimes & Wingrove, 2011; Rosenzweig et al., 2003; Shapiro et al., 2007) recruited health professionals in training. Collard et al. (2008) offered students the intervention as a continuation to training. Other studies offered it as one option from a choice of available subjects (Rosenzweig et al., 2003; Shapiro et al., 2007). Whereas, Rimes & Wingrove (2011, noted recruiting trainee psychologists by e-mail and accepting on a "first come – first served basis."

Studies reported a range of recruitment procedures, such as: e-mail announcements (Cohen-Katz et al., 2004; Goodman & Schorling, 2012; Krasner et al., 2009; Pipe et al., 2009; Ruths et al., 2012; Shapiro et al., 2005; Zoysa et al., 2012), local print, flyers and magazines (Cohen-Katz et al., 2004; Goodman & Schorling, 2012; Shapiro et al., 2005), phone calls (Krasner et al., 2009) and meetings (Rimes & Wingrove, 2011; Ruths et al., 2012).

All 18 studies are based on participants self-selecting to participate in the research. Furthermore, in 14 studies, participants were able to self-select to receive the mindfulness intervention (Beddoe & Murphy, 2004; Brady et al., 2012; Collard et al., 2008; Galantino et al., 2005; Goodman & Schorling, 2012; Krasner et al., 2009; Mackenzie et al., 2006; Rimes & Wingrove, 2011; Rosenzweig et al., 2003; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007; Zoysa et al., 2012). Ruths et al. (2012) highlighted individuals volunteering to participate may have different rationale for doing so. Beddoe & Murphy (2004), Brady et al. (2012), Shapiro et al. (2007) and Krasner et al. (2009) suggested individuals may have selected on the basis that mindfulness was attractive to them. Potential confounding variables include participants who perceive themselves as struggling to cope with stress (Beddoe & Murphy, 2004) or in the greatest need of help (Rimes & Wingrove, 2011). On the other hand, it may appeal to those interested in mindfulness (Beddoe & Murphy, 2004; Brady et al., 2012; Shapiro et al., 2007; Krasner et al., 2009) or those more enthusiastic (Beddoe & Murphy, 2004; Rimes & Wingrove, 2011).

Professional groups: Participants were health professionals employed in various departments and in training (see Table 1, Column D).

Outcome Measures: Table 1, Column M provides details of the outcome measures administered. These include stress measures (Beddoe & Murphy, 2004; Brady et al., 2012; Kang et al., 2009; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007; Zoysa et al., 2012), physical and psychological distress measures (Cohen-Katz et al., 2004; Collard et al., 2008; Galantino et al., 2005; Kang et al., 2009; Krasner et al., 2009; Pipe et al., 2009; Rimes & Wingrove, 2011; Rosenzweig et al., 2003; Ruths et al., 2012; Shapiro et al., 2005; Shapiro et al., 2007; Zoysa et al., 2012), physical measures (Galantino et al., 2005), burnout measures (Brady et al., 2012; Cohen-Katz et al., 2004; Galantino et al., 2005; Goodman & Schorling, 2012; Krasner et al., 2009; Mackenzie et al., 2006; Poulin et al., 2008; Shapiro et al., 2005) and quality of life measures (Collard et al., 2008; Mackenzie et al., 2006; Poulin et al., 2008; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Zoysa et al., 2012).

Process Measures: A range of candidate *process of change* measures were used (see Table 1, Column N). Studies evaluated empathy (Beddoe & Murphy, 2004; Brady et al., 2012; Galantino et al., 2005; Krasner et al., 2009; Pipe et al., 2009; Rimes & Wingrove, 2011; Shapiro et al., 2005), rumination and worry (Rimes & Wingrove, 2011, Ruths et al., 2012; Shapiro et al., 2007; Zoysa et al., 2012) and mindfulness measures (Brady et al., 2012; Cohen-Katz et al., 2004; Collard et al., 2008; Krasner et al., 2009; Rimes & Wingrove, 2011; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2007; Zoysa et al., 2012).

Results: Research has indicated the potential effectiveness of utilising mindfulness programmes on health professionals. Different forms of mindfulness i.e. Mindfulness Based Stress Reduction

(MBSR) and Mindfulness Based Cognitive Therapy (MBCT) (including shortened versions) are effective in increasing individual levels of mindfulness (Collard et al., 2008; Krasner et al., 2009; Rimes & Wingrove, 2011; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2007). Studies have noted that mindfulness is effective in reducing stress (Beddoe & Murphy, 2004; Brady et al., 2012; Kang et al., 2009; Pipe et al., 2009; Rimes & Wingrove, 2011; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007), reducing burnout (Cohen-Katz et al., 2004; Galantino et al., 2005; Goodman & Schorling, 2012; Krasner et al., 2009; Mackenzie et al., 2006; Poulin et al., 2008), increasing empathy (Beddoe & Murphy, 2004; Krasner et al., 2009), improving self-care (Brady et al., 2012), improving quality of life (Schenström et al., 2006) and improving satisfaction with life (Collard et al., 2008; Mackenzie et al., 2006; Poulin et al., 2008; Shapiro et al., 2005). Epstein (1999) concluded mindfulness can be integral to professional competence, promoting effective clinical decision making and reducing errors. These studies indicate mindfulness improves psychological well-being (Goodman & Schorling, 2012; Ruths et al., 2012) including reducing anxiety (Beddoe & Murphy, 2004; Kang et al., 2009; Shapiro et al., 2007), reducing rumination (Shapiro et al., 2007; Rimes & Wingrove, 2011), improving mood (Galantino et al., 2005; Rosenzweig et al., 2003), decreasing negative affect (Collard et al., 2008; Shapiro et al., 2007), increasing positive affect (Shapiro et al., 2007) and improving relaxation (Mackenzie et al., 2006; Poulin et al., 2008). Furthermore, studies concluded that individuals practising mindfulness more often benefit from increased improvements (Collard et al., 2008; Rimes & Wingrove, 2011; Ruths et al., 2012). Improvements were maintained for three months (Cohen-Katz et al., 2004; Schenström et al., 2006), 20 weeks (Ruths et al., 2012) and 18 months (Zoysa et al., 2012).

Assessing Risk of Bias

Selection Bias: Biased allocation to treatment.

Use of a Control and Recruitment Process

As mentioned above, the majority of studies did not utilise a control group. In addition, recruitment was often completed in a self-selecting nature. Therefore, there is potential bias in the selection of participants for the mindfulness and control groups.

Random Sequence Generation

Of the eight studies incorporating a control group, five utilised a randomisation procedure (Cohen-Katz et al., 2004; Kang et al., 2009; Mackenzie et al., 2006; Pipe et al., 2009; Shapiro et al., 2005). Two studies did not indicate the randomisation procedure utilised (Cohen-Katz et al., 2004; Shapiro et al., 2005). Therefore, the risk of bias is unclear. Mackenzie et al. (2006) indicated use of randomisation procedure, but also highlighted additional recruitment of controls, therefore rendering the process insufficient. Of the remaining two studies, one utilised an appropriate randomisation technique (Pipe et al., 2009). The other study utilised a method based on alternate allocation which is likely to be predictable (Kang et al., 2009).

Allocation Concealment

Out of the five studies using a randomisation procedure, three did not describe a method of concealment indicating an unclear risk of bias (Cohen-Katz et al., 2004; Pipe et al., 2009; Shapiro et al., 2005). It is apparent Mackenzie et al. (2009) did not utilise allocation concealment, recruiting controls at a later date due to diminishing numbers. Kang et al. (2009) utilised a number randomisation procedure, which was not sufficient to meet criteria for a low risk of bias.

All eight studies utilising a control group examined demographic and/or outcome measure differences at baseline (Cohen-Katz et al., 2004; Kang et al., 2009; Mackenzie et al., 2006; Pipe et al., 2009; Poulin et al., 2008; Rosenzweig et al., 2003; Shapiro et al., 2005; Shapiro et al., 2007). Six noted significant differences between groups (Kang et al., 2009; Mackenzie et al., 2006; Poulin et al., 2008; Rosenzweig et al., 2003; Shapiro et al., 2005; Shapiro et al., 2007). Four studies controlled for these differences in the statistical analysis (Kang et al., 2009; Rosenzweig et al., 2003; Shapiro et al., 2005; Shapiro et al., 2007). However, these studies noted that other confounding factors were not considered i.e. participant motivation (Pipe et al., 2009; Shapiro et al., 2007), heterogeneity of sample, in terms of autonomy, control and work responsibilities (Mackenzie et al., 2006) and concerns about stress and burnout (Poulin et al., 2008).

Performance Bias: bias due to knowledge of allocated intervention, including fidelity of interventions and blinding of participants and personnel.

Fidelity of Interventions

Table 1, Columns J, K and L provide details about the intervention implemented in studies. Nine studies described an MBSR informed intervention (Beddoe & Murphy, 2004; Cohen-Katz et al., 2004; Goodman & Schorling, 2012; Kang et al., 2009; Krasner et al., 2009; Rosenzweig et al., 2003; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007). Four studies shortened the MBSR protocol (Brady et al., 2012; Mackenzie et al., 2006; Pipe et al., 2009; Poulin et al., 2008). Four studies described following MBCT protocol (Collard et al., 2008; Rimes & Wingrove, 2011; Ruths et al., 2012; Zoysa et al., 2012). One study combined both MBSR and MBCT (Galantino et al., 2005). Despite adaptations being made, only one study outlined how changes were made (Galantino et al., 2005). Of the studies that highlighted total training time (n=16) the mean number of hours offered in training was 19.8 (range = 2 – 50).

Although indicating the utilisation of a mindfulness programme, four studies did not specifically outline protocol (Cohen-Katz et al., 2004; Collard et al, 2008; Pipe et al., 2009; Rimes & Wingrove, 2011). Only seven studies noted facilitator qualifications (Goodman & Schorling, 2012; Pipe et al., 2009; Rimes & Wingrove, 2011; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Zoysa et al., 2012) and only two studies highlighted a procedure to ensure programme integrity (Ruths et al., 2012; Zoysa et al., 2012). Therefore, only the latter two studies fulfil criteria for low risk of bias. The remaining studies were classified as having a high risk of bias.

Blinding

As tends to be the case with psychological intervention trials, the individuals delivering the mindfulness groups were not blinded to whether or not participants received the intervention (Beddoe & Murphy, 2004; Brady et al., 2012; Cohen-Katz et al., 2004; Collard et al., 2008; Galantino et al., 2005; Goodman & Schorling, 2012; Kang et al., 2009; Krasner et al., 2009; Mackenzie et al., 2006; Pipe et al., 2009; Poulin et al., 2008; Rimes & Wingrove, 2011; Rosenzweig et al., 2003; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007; Zoysa et al., 2012). Only two studies attempted to blind participants. Pipe et al. (2009) presented the project as content related to stress management and the control group was matched to have the same contact with facilitated learning experiences. Similarly, Poulin et al. (2008) noted that both their control and treatment arm focussed on stress management and were matched for didactic and experiential focus, homework and support material. Despite these attempts, the criteria for low risk of bias were not met. Therefore, all studies were classified as a high risk of bias.

Detection Bias: bias due to knowledge or allocated interventions by outcome assessors.

Blinding of Outcome Assessment

Only one of the eight controlled studies ensured that assessments were completed blind to the outcome of allocation (Kang et al., 2009). Pre- and post-intervention measures were performed by research assistants who were blind to experimental and control groups.

Attrition Bias: bias due to amount, nature of handling of incomplete outcome data.

Incomplete Outcome Data

Three of the 18 studies did not record attrition information (Mackenzie et al., 2006; Poulin et al., 2008; Rosenzweig et al., 2003). Therefore, there is insufficient data to permit judgement of high or low risk of bias for incomplete outcome data.

The remaining 15 studies noted attrition in various forms (Beddoe & Murphy, 2004; Brady et al., 2012; Cohen-Katz et al., 2004; Collard et al., 2008; Galantino et al., 2005; Goodman & Schorling, 2012; Kang et al., 2009; Krasner et al., 2009; Pipe et al., 2009; Rimes & Wingrove, 2011; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2005; Shapiro et al., 2007; Zoysa et al., 2012). Twelve studies highlighted individual session attendance. Two studies noted the number of participants that completed training, however they did not define completion i.e. attendance at all sessions or at a certain amount (Beddoe & Murphy, 2004; Cohen-Katz et al., 2004). Four studies identified individuals that did not attend all sessions (Collard et al., 2008; Kang et al., 2009; Schenström et al., 2006; Shapiro et al., 2005). Pipe et al. (2009) outlined those who attended at least three quarters of the sessions. Goodman & Schorling (2012) and Ruths et al. (2012) noted those who attended half the sessions. Krasner et al. (2009) noted the number of participants that attended at least one session. Brady et al. (2012) and Rimes & Wingrove, 2011 definitively outlined the number of sessions each participant attended. Overall, studies highlighted varying attendance and drop-out rates (see Table 1, Column F).

Whilst considering the 15 studies noting attrition, 11 assessed change over two time points (i.e. before and after) and four evaluated change over three or more time points (Collard et al., 2008; Ruths et al., 2012; Schenström et al., 2006; Zoysa et al., 2012). All 15 studies remarked on the number of individuals recruited and the number who completed the outcome measures at various time points (see Table 1, Columns E, G and H). The 15 studies indicating sample size at baseline and at the point of final questionnaire completion noted a total recruited sample of n=634. Of these n=497 completed final assessment point outcome measures, which is an overall attrition rate of

21%. Attrition rates range from 0% (Rimes & Wingrove, 2012) to 30% (Beddoe & Murphy, 2004; Brady et al., 2012, Ruths et al., 2012) to a further 44% in a longer-term follow-up study (Zoysa et al., 2012).

Four studies recorded reasons for attrition (Brady et al., 2012; Galantino et al., 2005; Pipe et al., 2009; Shapiro et al., 2005) including work scheduling conflicts (Brady et al., 2012; Pipe et al., 2009; Shapiro et al., 2005), increased work responsibility (Shapiro et al., 2005), illness (Brady et al., 2012; Shapiro et al., 2005), family problems, resignation (Shapiro et al., 2005) and 'other life events' preventing participation (Galantino et al., 2005). Given the number of work-related factors, Shapiro et al. (2005) extrapolate that adding an intervention plus daily practice to an already demanding schedule may not be feasible for health care professionals. Some studies explicitly identified high attrition and the problematic consequences (Brady et al., 2012; Collard et al., 2008; Galantino et al., 2005; Shapiro et al., 2005). Brady et al. (2012) outlined their uncertainty of how drop-outs would influence the results, while Collard et al. (2008) highlighted the potential favourable direction of confirming the efficacy of intervention. Although these studies identified attrition in a comprehensive manner, they still failed to consider it in the statistical analysis. Therefore, these studies reach a high risk of bias.

Overall, seven studies did not report reasons for attrition nor consider attrition data in analysis, indicating a high risk of bias (Beddoe & Murphy, 2004; Cohen-Katz et al., 2004; Goodman & Schorling, 2012; Krasner et al., 2009; Rimes & Wingrove, 2011; Shapiro et al., 2007; Zoysa et al., 2012).

Galantino et al. (2005), Goodman & Schorling (2012) and Shapiro et al. (2005) completed analysis to report differences between those who completed and those who did not complete the surveys across age, sex, ethnicity or any outcome measures. Although completing some analysis on attrition data, these studies failed to incorporate attrition data into statistical analysis. Therefore these studies also indicate a high risk of bias.

Two studies, noted their attrition data was low (Rimes & Wingrove, 2011; Pipe et al. 2009), therefore it is unlikely that the missing data is related to the true outcome; consequently, these studies reach a low risk of bias.

Overall, studies noted attendance, attrition in outcome measures, and the reasons for attrition; some even noted the related difficulties when this data is not considered. However, studies ultimately failed to consider attrition data in statistical analysis. It would appear all studies' statistical analysis excluded individuals who did not complete follow-up measures. No studies conducted intent-to-treat analysis. Therefore, the majority of studies reached a high risk of bias. However, as reported attrition was low for Rimes and Wingrove (2012) and Pipe et al. (2009), it is unlikely that attrition would have biased the results; therefore, these studies receive a low risk of bias rating.

Reporting bias: bias due to selective reporting of results.

Selective Reporting

No studies outlined an explicit protocol (i.e. initial protocol prior to write up). 13 studies met low risk of bias, as although the study protocol is not available, the published reports include all expected outcomes, including those that were pre-specified in the aims and hypotheses (Beddoe & Murphy, 2004; Brady et al., 2012; Cohen-Katz et al., 2004; Collard et al., 2008; Goodman & Schorling, 2012; Kang et al., 2009; Krasner et al., 2009; Mackenzie et al., 2006; Pipe et al., 2009; Rosenzweig et al., 2003; Ruths et al., 2012; Schenström et al., 2006; Shapiro et al., 2007). However, four studies met criteria for high risk of bias. Rimes & Wingrove (2011) and Galantino et al. (2005) failed to report all pre-specified primary outcomes, only reporting significant positive outcomes. Shapiro et al. (2005) and Zoysa et al. (2012) included post-hoc analysis that was non-specified. Poulin et al. (2008) did not define the projected statistical analysis nor indicate clear hypothesis, therefore, it was not possible to identify the risk of bias.

Risk of Bias Graph 1 and *Risk of Bias Summary* Graph 2 respectively outline the overall quality across the studies as a whole and the risk of bias ratings calculated for each study.

[Insert Graph 1 here]

[Insert Graph 2 here]

Discussion

Main Findings and Conclusion

The aim of this systematic review was to critically appraise current published studies evaluating mindfulness-based group interventions for health professionals. Overall, all studies reviewed indicated the positive impact of implementing mindfulness in the work arena. This review evaluated the potential risk of bias inherent in each study's methodology. It was hoped that this would help to increase the methodological rigour of future research in this area. Sources of bias have important implications for the internal validity of the research process and whether the studies have appropriately addressed the research questions. This review adhered to the PRISMA and

Cochrane guidance and recommendations on how to critique methodology. PRISMA and Cochrane both advocate the assessment of risk of bias utilising the Cochrane 'Risk of Bias' Tool (Higgins et al., 2008). This is the first review to utilise this approach with mindfulness-based group interventions. It is apparent from Graphs 1 and 2 that studies show a high risk of bias across the majority of domains.

A number of key issues emerged from the review. Firstly, the recruitment procedures used by studies may have increased the risk of selection bias and may have limited the extent to which the results of the studies can be generalised. Few studies clearly demarcate the size of the population source from which they recruited. However, it seems that 13 out of 18 studies recruited from large source samples i.e. a whole hospital (Ruths et al., 2012) and large professional groups i.e. primary care physicians (Krasner et al., 2009). Despite such large sources, the number of individuals selecting mindfulness was remarkably small. For instance, Krasner et al. (2009) in a non-controlled study noted that only 70 of the 871 individuals approached (8%) volunteered to participate in mindfulness training.

All studies are based on staff self-selecting to participate in the research, with participants specifically self-selecting to take part in the mindfulness intervention in 14 studies. This raises two questions:

A. Why, given the large recruitment sites, did such a small percentage of people participate, given the high stress and burnout levels indicated in the literature?
B. Given this potential recruitment bias, what confounding factors come into play? Could there be an inherent difference between individuals participating and those who did not?

In terms of selection bias, the majority of studies did not have a control group. Lack of a control group prohibits the assurance that no confounding variables were involved in the results. In addition, it questions the causal relationship between the intervention and the outcome measures. Therefore, results can only be tentatively linked to the mindfulness intervention. It also precludes comparison to other stress reduction programmes. In terms of selection bias for studies incorporating a control group, only one implemented an appropriate randomisation procedure (Pipe et al., 2009) and only one indicated allocation concealment, which did not meet criteria (Kang et al., 2009). Selection bias can lead to systematic differences between characteristics of participants in different intervention groups. A majority of the studies (six out of eight) noted significant differences at baseline. Differences at baseline indicate the potential for confounding factors coming into play. Statistical methods should be used to counter the bias introduced from confounding; however, only four studies did so (Kang et al., 2009; Rosenzweig et al., 2003; Shapiro et al., 2005; Shapiro et al., 2007). These aforementioned studies accounted for basic

demographic differences; however, they did not consider the possibility of other confounding factors i.e. motivation (Pipe et al., 2009; Shapiro et al., 2007), work differences (Mackenzie et al., 2006) and individuals' concerns regarding stress (Poulin et al., 2008).

In terms of performance bias and fidelity of intervention, all studies followed a well-researched mindfulness programme, with the majority outlining protocol. However, less than half outlined facilitator skills and only two ensured assessment of adherence to protocol (Ruths et al., 2012; Zoysa et al., 2012). Furthermore, all studies failed to blind participants and personnel in regard to the treatment received by participants. In terms of detection bias, only one study successfully achieved blinding of the outcome assessment (Kang et al., 2009).

Overall, there was a high risk of attrition bias, with studies reporting incomplete outcome data and some failing to report attrition data at all. Studies reporting attrition numbers did not always consider the potential reasons for attrition. The attrition rate varied between studies, although overall, there appears to be a high rate of attrition. Few studies provided rationale for dropout; of those that did, it was indicative that a number of work- and life-related factors precluded attendance (Brady et al., 2012; Pipe et al., 2009; Shapiro et al., 2005). Interestingly, one study questioned the feasibility of administering a stress intervention, in addition to a demanding work schedule (Shapiro et al., 2005). Studies may be recruiting a specific population i.e. those whose job and life pressures do not prevent involvement. Mindfulness interventions may not be reaching all individuals who could benefit from participating. Some individuals may feel their job and life pressures diminish their opportunity to attend. Furthermore, the attrition data was not incorporated into the results and intent-to-treat analyses were not conducted in any study. The extent to which health professionals are able to complete the intervention is an indication of the extent to which they will engage with the intervention and how acceptable they find the approach. The resultant bias in attrition reporting precludes definitive conclusions about how acceptable mindfulness is to health professionals.

In terms of reporting bias, no studies outlined an explicit protocol. However, a large quantity appeared to report pre-specified outcomes as indicated by their aims and hypothesis. A small but significant minority failed to report all pre-specified primary outcomes, only reporting positive outcomes and including retrospective analysis i.e. utilising analysis not pre-specified. One study failed to define planned statistical analysis and indicate clear hypothesis (Poulin, et al., 2008).

Overall, the studies had a high degree of risk of bias spanning across all domains (see Graph 2). Therefore, there is a high risk of bias for participant selection, intervention implementation, and how outcomes are measured and reported. Relatively speaking, studies' reporting of results appears to be more rigorous. However, the results remain questionable due to the methodologies utilised prior to analysis. Galantino et al. (2005) scored highly for every risk of bias domain.

Comparatively, the study conducted by Pipe et al. (2009) incorporated randomisation and attrition data, while completing a fair report; it was, therefore, more methodologically rigorous and likely to reduce the likelihood of bias.

Limitations

There are a number of limitations to be taken into account when considering the conclusions and recommendations. It is important to highlight this review's limited scope. It looks at mindfulness-based group interventions for health professionals and professionals in training. No attempt is made to compare different types of health professional (e.g. nurses, psychologists, and those in training). Although the review focuses on the methodological rigour of selected studies, it does not consider whether this methodological quality impacts on the efficacy reported. Unfortunately, the scope and size of this review does not permit this analysis, but it is important to consider this in the future.

Implications for Future Practice

This review highlights the important aspects that should be incorporated in future practice.

Methodology and study design: Overall, the poor methodological rigour noted in studies questions the veracity of their results. There is a clear indication that studies need to implement research strategies to ensure rigour. There are few RCTs conducted. Researchers need to consider how to implement RCTs while reducing potential sources of bias.

Implementation: Studies need to consider the confounding factors and contemplate the logistics of ensuring fair recruitment to optimise potential uptake and sustainability. There is a need to explore possible ways to implement stress management programmes without adding additional time commitment and strain.

Attrition: In addition, intent-to-treat analysis should be conducted in future studies. Attrition rate data needs to be considered in analysis. In addition, it would be helpful to evaluate why there is such a poor uptake considering the high stress and burnout levels indicated in the literature, and why people feel unable or unwilling to complete the treatment.

The mental health and well-being of health professional staff is paramount. This review highlights the importance of considering the implementation of this type of intervention within a health professional context, and it also considers how studies' results can be more valid, reliable, accurate, generalisable and free from bias.

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Figure 1: Flow Diagram of Selection of Papers for Inclusion in the Systematic Review

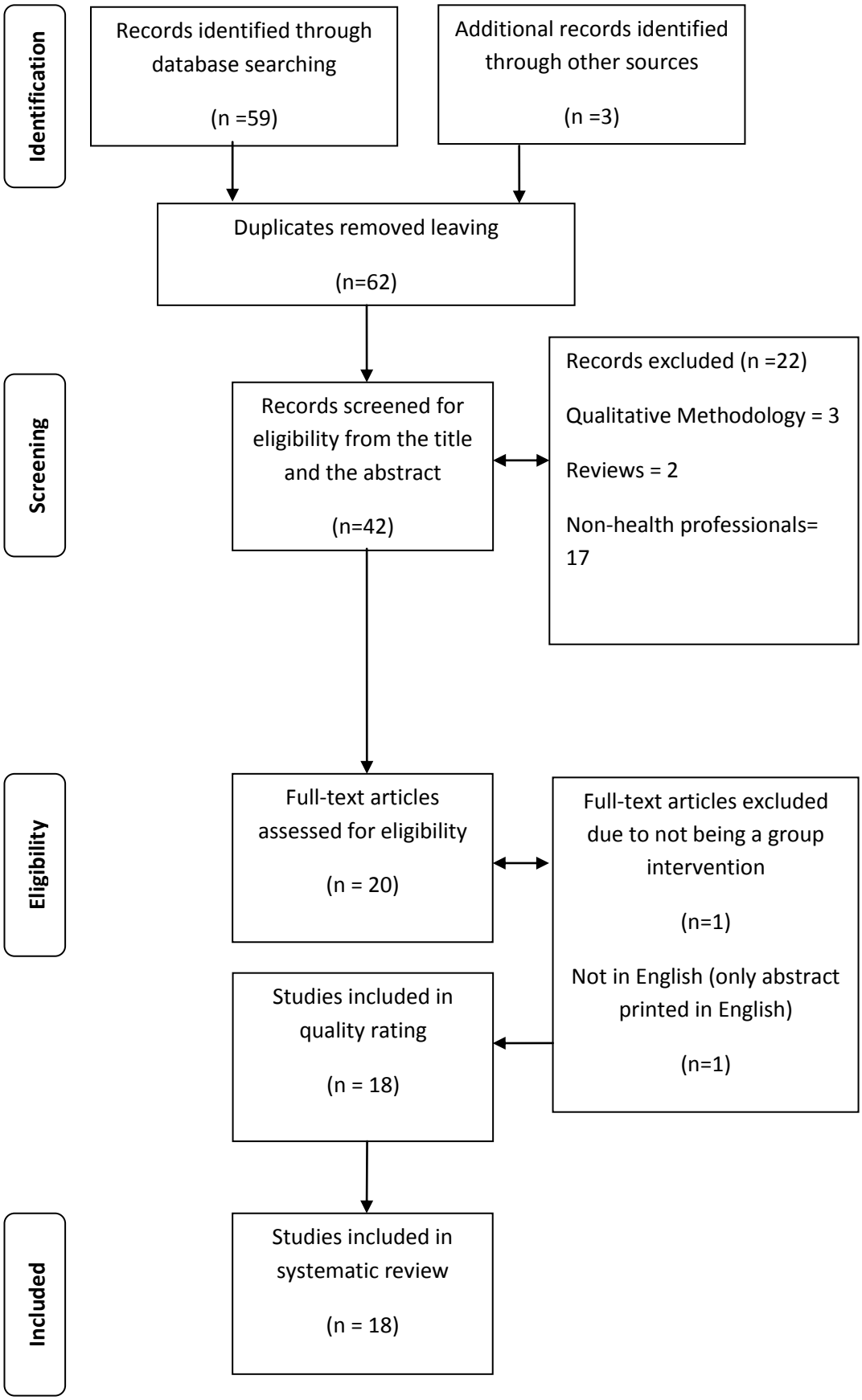


Table 1: Characteristics of Included Studies

A	B	C	D	E	F	G	H	I	J	K	L	M	N
												Measures Utilised**	
Study	**Design**	**Control**	**Population**	**No Recruited**	**Attendance**	**No Completed Outcome Measure**	**Attrition (%)**	**Mean Age**	**Type of Mindfulness Intervention**	**No of Intervention Sessions**	**Homework Task Assigned**	**Outcome**	**Process**
Beddoe & Murphy (2004)	Pilot Study Pre-Post Test	No	Nursing students	23	18 completed course	16	30	25	MBSR	8 x 2hr	Yes	DSP	IRI
Brady et al. (2012)	Pre-Post Test	No	Behavioural Health Staff	23	16 attended all classes	16	30	N/A	Modified MBSR	4 x 1hr	Yes	MHPSS MBI SOSS	TMS
Cohen-Katz et al. (2004)	RCT	Yes: Wait-list	Nurses	27	12 completed treatment	21*	22	46	MBSR	8 x 2.5hr + 6hr retreat.	Yes	MBI BSI	MAAS
Collard et al. (2008)	Repeated Measures (Test-Re-test) Within participants.	No	Counselling & Psychotherapy students	20	3 did not attend final session	16*	20	N/A	MBCT	8 wk course	N/A	SWLS PANAS	FMI
Galantino et al. (2005)	Pre- Post Test	No	University hospital staff	84	N/A	69	18	43	Mindfulness Meditation: (MBSR & MBCT)	8 x 2 hr	Yes	POMS-SF MBI Salivary cortisol	IRI

A	B	C	D	E	F	G	H	I	J	K	L	M	N
												Measures Utilised**	
Study	**Design**	**Control**	**Population**	**No Recruited**	**Attendance**	**No Completed Outcome Measure**	**Attrition (%)**	**Mean Age**	**Type of Mindfulness Intervention**	**No of Intervention Sessions**	**Homework Task Assigned**	**Outcome**	**Process**
Goodman & Schorling (2012)	Pre-Post Observational	No	Physician & Health Care Providers	93	90 participated in at least 4 sessions	73	22	N/A	MBSR	8 x 2.5hr + 7hr retreat	Yes	MBI SF-12v2	N/A
Kang et al. (2009).	Non-equivalent, control group, pre-post-test.	Yes: No treatment.	Nursing	41	9 eliminated for missing group twice	32	22	22	Modified MBSR	8 x 1.5-2 hr	N/A	PWI-SF STAI BDI	N/A
Krasner et al. (2009)	Pre-Post Test	No	Primary care physicians.	70	68 participated in at least 1 session	51	27*	N/A	Continuing Medical Education (CME) Mindfulness narrative medicine & appreciative inquiry.	8 x 2.5 hr + 7 hr retreat. 10 mth 2.5 hr session follow up	N/A	MBI POMS MMBFF	2-FMS JSPE
Mackenzie, et al. (2006)	Pilot study, Pre - post test	Wait-list	Nurses & nurses aides.	N/A	N/A	30	N/A	47	MBSR Shortened version	4 x 30 min	Yes	MBI SRDI IJSS SWLS OLQ	Qualitative Evaluation

A	B	C	D	E	F	G	H	I	J	K	L	M	N
												Measures Utilised**	
Study	**Design**	**Control**	**Population**	**No Recruited**	**Attendance**	**No Completed Outcome Measure**	**Attrition (%)**	**Mean Age**	**Type of Mindfulness Intervention**	**No of Intervention Sessions**	**Homework Task Assigned**	**Outcome**	**Process**
Pipe et al. (2009)	RCT	Wait-list	Nursing leaders	34	33 completed group. 11/15 training participants attended 3/ 4 sessions. 16/17 controls attended 3/4 sessions.	32	6	50	MBSR Shortened version	5 x 2hr	Yes	SCL-90-R CES	N/A
Poulin et al. (2008)	Pre-post test Quasi-experimental	Yes: Another treatment	Nurses & nursing aides	N/A	N/A	40	N/A	47	MBSR	4 x 30 min.	Yes	MBI SLS SRDS	N/A
Rimes & Wingrove (2011)	Pre-Post Test	No	Trainee Clinical Psychologists	20	7 attended 8 6 attended 7 5 attended 6 and 2 attended 5 sessions	20	0	N/A	MBCT	8 weekly sessions	Yes	PSS HADS IRI SCS RRQ	FFMQ A mechanism of mindfulness questionnaire

A	B	C	D	E	F	G	H	I	J	K	L	M	N
												Measures Utilised**	
Study	**Design**	**Control**	**Population**	**No Recruited**	**Attendance**	**No Completed Outcome Measure**	**Attrition (%)**	**Mean Age**	**Type of Mindfulness Intervention**	**No of Intervention Sessions**	**Homework Task Assigned**	**Outcome**	**Process**
Rosenzweig, et al. (2003)	Prospected, non-randomized, controlled trial. (Pre-post)	Yes: Structurally equivalent program	Medical Students	302	N/A	N/A	N/A	N/A	MBSR	10 x 90 mins.	Yes	POMS	N/A
Ruths, et al. (2012)	Prospective, uncontrolled study, using a repeated measures design.	No	Mental health & research staff	27	Mean number attended = 7 sessions 24/27 attended 4 sessions +	18*	33	35	MBCT	Eight x 2hr + two follow-up sessions at weeks 14 & 20	Yes	GHQ SWLS BSI PSWQ STAI	MAAS
Schenström, et al. (2006).	Prospective pilot study, repeated measures.	No	Mixed primary care staff	52	4 dropped out	41*	21	N/A	MBSR	3 x 2 day training 1 x 1 day workshop 2-4 wk intervals in between	Yes	WHO-5 VAS	MAAS

A	B	C	D	E	F	G	H	I	J	K	L	M	N
												Measures Utilised**	
Study	Design	Control	Population	No Recruited	Attendance	No Completed Outcome Measure	Attrition (%)	Mean Age	Type of Mindfulness Intervention	No of Intervention Sessions	Homework Task Assigned	Outcome	Process
Shapiro et al. (2005).	Pilot RCT	Yes: Wait-list	Health care professionals	38	8/18 did not complete training 2/20 controls did not complete	28	26	N/A	MBSR	8 x 2hr	N/A	BSI MBI PSS SWLS SCS	N/A
Shapiro et al. (2007).	Prospective, non-randomized, cohort controlled design. Pre-post.	Yes: Structurally equivalent program.	Masters level counselling students	64	N/A	54	15	29	MBSR	10 x 3 hr	Yes	PANAS PSS RRQ	MAAS
Zoysa et al. (2012).	Prospective, uncontrolled study, using a repeated measures design. Extended Follow Up to 18mths	No	Mental health & research staff	18	N/A	10	10	44	MBCT	Eight x 2hr + two follow-up sessions at weeks 14 and 20	Yes	GHQ SWLS BSI PSWQ STAI	MAAS

*Denotes longitudinal studies where final questionnaire time point has been considered. **Glossary attached

Glossary

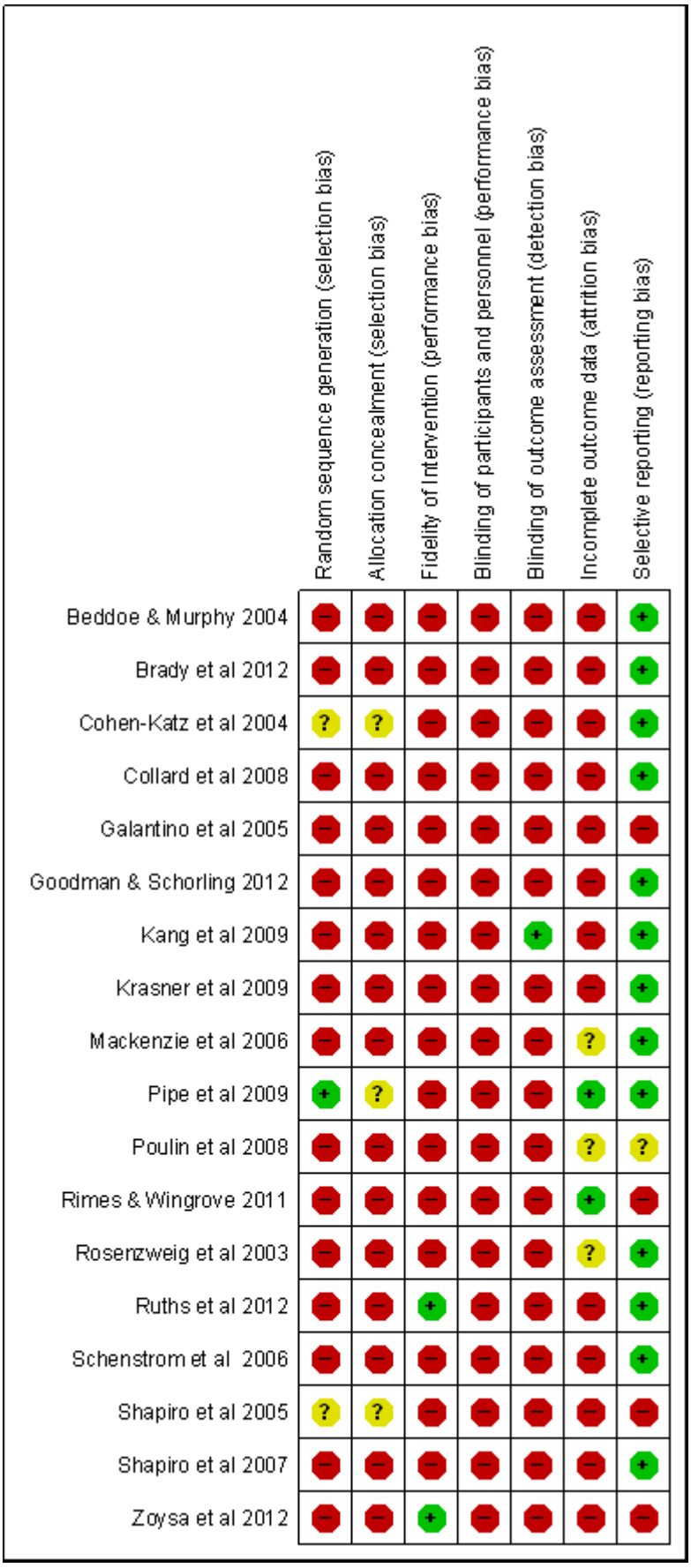
Outcome Measures

Abbreviation	Full Questionnaire Name and (author)
BDI	Beck Depression Inventory (Beck et al., 1961)
BSI	Brief Symptom Inventory (Psychological Distress) (Derogatis, 1993)
CES	Caring Efficacy Scale (Coates, 1997)
DSP	Derogatis Stress Profile (Derogatis, 1987)
GHQ	General Health Questionnaire (Goldberg & Williams, 1988).
HADS	Hospital Anxiety & Depression Scale (Zigmond & Snaith, 1983)
IJSS	Intrinsic Job satisfaction Scale from the Job Satisfaction Subscale (Koeske, Kirk, Koeske & Rauktis, 1994)
MMBFF	Mini-markers of the Big Five Factor Structure (Saucier, 1994)
MHPSS	Mental Health Professionals Stress Scale (Cushway, Tyler & Nolan, 1996)
MBI	Maslach Burnout Inventory (Maslach & Jackson, 1981)
OLQ	Orientation to Life Questionnaire (Antonovsky's, 1987)
PANAS	Positive and Negative Affect Schedule (Watson, Clarke & Tellegen, 1988)
POMS	Profile of Moods Scale (McNair, Lorr & Droppelman, 1971)
POMS-SF	Profile of Moods States:Short Form (McNair, Lorr & Droppelman, 1992)
PSS	Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983)
PSWQ	The Penn State Worry Questionnaire (Meyer et al., 1990).
PWI-SF	Psycho-Social Wellbeing Index – Short Form (Chang, 2000)
RRQ	Rumination Reflection Scale (Trapnell & Campbell, 1999).
SCL-90-R	Symptom Checklist 90-Revised (Derogatis & Lazarus, 1994)
SCS	Self Compassion Scale (Neff, 2003)
SF-12v2	Health Survey: Version 2 (Ware, Kosinksi, Turner-Bowker & Gandek, 2005)
SOSS	The Sense of Self Scale (O'Connor, 1995)
SRDI	Smith Relaxation Dispositions Inventory (Smith, 2001)
STAI	State Trait Anxiety Inventory (Spieberger, 1983)
SWLS	Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985)
VAS	Visual Analogue Scale for Perceived Stress (Wewers and Lowe, 1990)
WHO-5	WHO-5 Well-being Questionnaire (Bech, 2004)

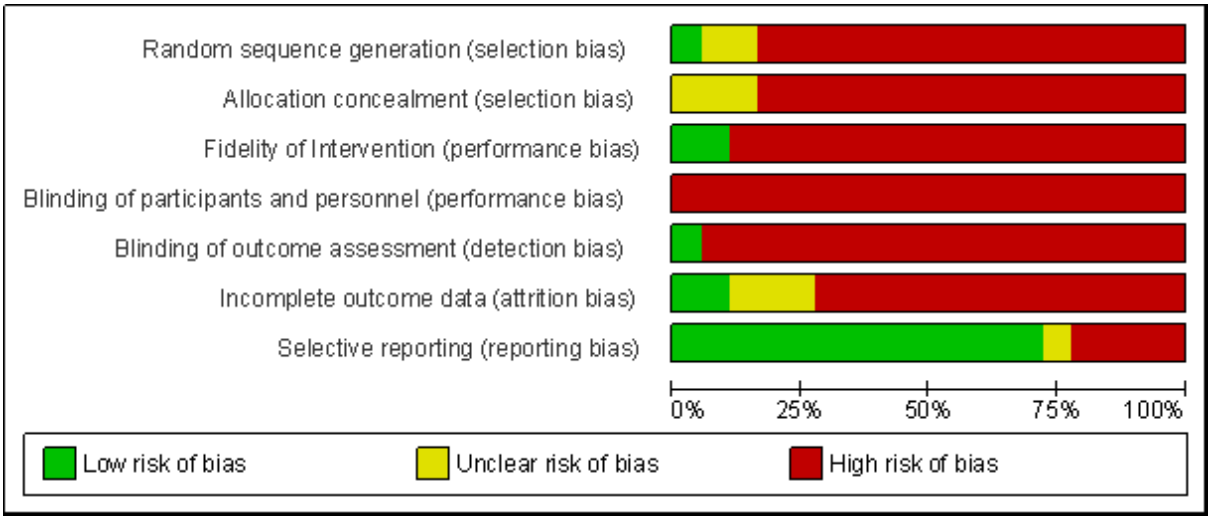
Process Measures

Abbreviation	Full Questionnaire Name and (author)
IRI	Interpersonal Reactivity Index (Davis, 1980)
FFMQ	Five Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006)
FMI	Freiberg Mindfulness Inventory (Walach et al., 2006)
JSPE	Jefferson Scale of Physician Empathy (Hojat, Mangione, Nasca et al., 2001).
MAAS	Mindfulness Attention Awareness Scale (Brown & Ryan, 2003)
TMS	Toronto Mindfulness Scale (Lau et al., 2006)
2-FMS	2-factor Mindfulness Scale (Baer, Smith, Hopkins, Krietemeyer &Toney, 2006)
A Mechanism of Mindfulness Questionnaire.	A mechanism of mindfulness questionnaire also devised to investigate other possible processes.

Graph 1: Risk of Bias summary



Graph 2: Risk of Bias Graph



CHAPTER 2: MAJOR RESEARCH PROJECT

ACT at Work: Feasibility Trial of an Acceptance Based Intervention to Promote Mental Well-being and Work Engagement in Mental Health Service Staff.

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Plain Language Summary

Background: NHS mental health staff have a number of work related stresses. Acceptance and Commitment Therapy (ACT) is a psychological therapy aimed to teach us to accept what is out-with our personal control and commit to take action that enriches our life. ACT teaches psychological skills to handle painful thoughts and feelings effectively, in such a way that they have less impact and influence. These are known as mindfulness skills. It also helps clarify what is truly important and meaningful – that is, clarify our values – and use that knowledge to guide, inspire, and motivate us to set goals and take action. Work-based ACT has been shown to improve mental health, reduce stress and help individuals learn and work more effectively. Work engagement is defined as being energetic and connected to activity at work. No studies have looked at whether ACT interventions impact on work engagement.

Aims: This study looks at whether ACT at Work Training (ACT_w) could be implemented with mental health staff in Lanarkshire. It will also assess whether ACT_w can improve mental well-being and foster work engagement. Staff were recruited to take part in ACT_w. Another group took part in the study, who did not receive ACT_w, to act as a comparison group.

Results: Despite some initial problems recruiting participants, participants for training and participants to act as a comparison group were successfully recruited. Individuals who completed the training gave positive feedback and suggested the intervention was acceptable. However, a third of ACT_w participants missed training sessions, which was related to work and personal stress factors. Results did not show a difference between individuals who received ACT_w and those who did not. However, this may be due to the low numbers of individuals recruited with high stress or low work engagement, meaning that there was little room for improvement. Results did show an association between the skills taught in training i.e. psychological mindedness and valued living and the outcome measures the study aimed to improve i.e. mental well-being and work-engagement.

Conclusion: Results of this study highlight helpful ways to proceed with future research in this area. It would be helpful to conduct future studies with more participants, therefore, to offer training to a larger amount of people. Furthermore, it is important to try and ensure individuals who are stressed receive training; this may mean working with organisations to consider the problems with participants attending.

Abstract

Background: Acceptance and Commitment Therapy (ACT) aids individuals to accept difficult experiences that may be beyond their control and commit to behaviour that is consistent with their values. Previous research highlights that ACT interventions can: improve mental health, reduce worker stress and engender effective learning and performance. Work engagement has been defined as having an energetic and effective connection to work activity. As yet, no studies have investigated whether ACT interventions lead to improvements in work engagement.

Aim: To investigate the feasibility of using ACT at Work Training (ACT_w) to improve mental well-being and foster work engagement in staff working in mental health services.

Method: A prospective, non-randomised, cohort controlled, repeated measures design was utilised. The parameters of this feasibility trial were formulated around the PICO (population, intervention, control, outcome) framework. 25 staff were recruited to take part in ACT_w. 20 staff were recruited separately to a control group. The control group did not receive any input. ACT_w was implemented over three sessions. The Utrecht Work Engagement Scale, General Health Questionnaire, Michigan Job Satisfaction Scale and Hospital Anxiety and Depression Scale were administered as outcome measures, while the Acceptance and Action Questionnaire - measuring psychological flexibility - and the Valuing Questionnaire - measuring value based living - were administered as therapy-specific measures. Following the completion of baseline assessments, measures were conducted 6 and 10 weeks post-baseline.

Results: Despite initial recruitment problems, ACT_w and control group participants were successfully recruited. Positive feedback from those who completed ACT_w, suggested the intervention was acceptable. However, a third of ACT_w participants missed training sessions, which was related to work and personal stress factors. The lack of significant differences between ACT_w and control participants' in scores on outcome and therapy-specific measures across the time points does not provide support for treatment signal changes in these measures. However, the lack of significant differences in outcome measures may be due to the low number of individuals presenting with high stress and low work engagement levels. For the group as a whole, changes in stress, anxiety, depression and work engagement were significantly correlated with changes in therapy-specific measures i.e. measures of psychological flexibility and value based living.

Conclusions: Results of this study highlight factors that will help inform a larger trial of ACT_w for health professional staff. Suggestions for future implementation include considering a larger sample and catchment area, staff stress level, potential barriers to participation and implementation of change at an organisation level.

Highlights

- Feasibility trial assessing implementation of ACT_w on mental health staff, in order to improve mental well-being and foster work engagement.
- Successful recruitment of ACT_w and control participants despite low rate of recruitment precluding utilisation of a randomised control trial.
- Successful implementation and acceptability of $ACT_{w.}$
- Little evidence of treatment signals in outcome and therapy-specific measures. Non-significant results potentially indicative of low baseline stress levels identified in the staff recruited.
- Significant correlations noted between outcomes measures of stress, mental health, work engagement and therapy-specific measures, psychological flexibility and value based living.
- Study outlines suggestions for the future implementation of a larger trial.

Key words: Acceptance and Commitment Therapy; work, stress; work engagement; well-being.

Introduction

Health and Well-being

A plethora of literature identifies the stressors and contextual challenges experienced by health-care professionals in their job. The Scottish Government (2011) '*Safe and Well at Work: Occupational Health and Safety Strategic Framework for NHS Scotland*' document identifies that an estimated 1.3 million people working in 2009/10 suffered from work-related ill health, of which 435,000 were indicated to be stress-related. The Scottish Government (2013) recorded the 2012/13 NHS staff sickness rate as 4.8%, equating to almost 6400 staff on leave at any one time (Information Service Division, 2013). Health professionals have a number of stressors intrinsic to their caring role (Aiken, Clarke & Sloane, 2001; Aiken, Clarke, Sloane, Sochalski & Silber, 2002), which occur alongside contextual demands (Aiken, et al., 2001; Aiken et al., 2002). Studies highlight the emotional toll on mental health professionals (Brady, O'Connor, Burgermeister & Hanson, 2012). If staff members do not learn to effectively deal with another person's stress or suffering this may lead to increased levels of interpersonal stress (Beddoe & Murphy, 2004).

The Scottish Government identified the mental health and well-being of NHS staff as a priority. NHS staff health and well-being services have been criticised as being reactive; responding to ill-health rather than actively promoting good health and well-being (NHS, 2009). The Scottish Centre for Healthy Working Lives introduced the *Healthy Working Lives (HWL)* awards programme to help employers understand, protect and improve their employees' health. The Chief Medical Officer outlines NHS Scotland's commitment to attaining HWL awards for all acute services; working to attain the Gold Award and the HWL Mental Health Commendation Award (Scottish Government, 2012). To obtain the gold award, NHS boards have to demonstrate that policy, training and support are in place to promote staff mental health. However, there has been no evaluation of interventions aimed to promote mental well-being in NHS staff.

Work Engagement

Burnout is a syndrome with three dimensions; emotional exhaustion, feelings of cynicism and detachment, and a sense of ineffectiveness and lack of accomplishment (Maslach, Schaufeli & Lieter, 2001). The literature is replete with claims that burnout is an endemic problem in health professionals (Maslach & Jackson, 1981). Research identifies mental health professionals are vulnerable to increased stress levels (Margison, 1987; Ruths, et al., 2012), maladaptive coping mechanisms (Ruths et al., 2012) and burnout (Farber & Heifetz, 1982; Ruths et al., 2012).

According to Maslach and Leiter (1997), burnout is the negative antithesis of the energy, involvement, and efficacy that characterises *work engagement.* Work engagement is a positive, fulfilling, work-related state of mind that is characterised by vigor, dedication and absorption (Schaufeli, Salanova, González-Romá & Bakker, 2002). Work engagement can predict high levels of job performance, client satisfaction (Bakker, Schaufeli, Leiter, & Taris, 2008) and financial return (Bakker, Albrecht, & Leiter, 2011). Employees who feel vital, strong and enthusiastic about their work show better in-role and extra-role performance, resulting in better financial results and satisfied customers (Bakker et al., 2008). Engaged workers tend to have an active coping style (Rothmann & Storm, 2003), believing they can face work demands (high self-efficacy), experience good outcomes in life (optimistic) and satisfy their needs by participating in their organisation role (organisational based self-esteem) (Xanthopolou, Bakker, Demerouti, & Schaufeli, 2007).

Current Work-based Programmes

To date, research highlights few work-based programmes aimed at preventing stress and/or promoting well-being. Of those that exist, few evaluate intervention efficacy (Mackenzie, Poulin & Seidman-Carlson, 2006; Maslach, 2003; Poulin, Mackenzie, Soloway & Karayolas, 2008). Literature highlighting stressors encountered by health practitioners emphasise the need for stress management initiatives (Irving, Dobkin & Park, 2009). Although burnout conceptualisations suggest it is the product of both personal and environmental factors (Leiter & Maslach, 1988; Lloyd, Bond & Flaxman, 2013), research has revealed that burnout is more a function of the situation than the person (Maslach, 2003; Poulin et al., 2008). Nevertheless, the most common stress management approaches are person-centred (Maslach, 2003), often disregarding organisation change (Schaufeli, 2003; Bond & Bunce, 2000).

Stress management training (SMT) is commonly used to improve mental health at work (Flaxman & Bond, 2010a), providing cognitive restructuring, muscle relaxation and behavioural skills (i.e. problem solving). Reviews highlight that SMT has a moderate effect in improving employee health (Flaxman & Bond, 2010a). However, reviews highlight design and methodological limitations (Bunce, 1997; Flaxman & Bond, 2010a; Schaufeli, 2003). Shortcomings include short-term evaluation, restricted range of outcome variables, and poor operationalisation of these variables (Murphy, 1988). Furthermore, they fail to examine the psychological mechanisms which mediate change (Bunce, 1997; Bond & Bunce, 2000; Brinkborg, Michanek, Hesser & Berglund, 2011; Flaxman & Bond, 2010a; Lloyd et al., 2013; Noone & Hastings, 2010). Studies advocate that before designing an SMT, a greater understanding of the mechanisms, or mediators, by which it helps people change is required to optimise effectiveness and understand the circumstances in which an intervention is appropriate (Bunce, 1997; Bond & Bunce, 2000; Flaxman & Bond, 2010a; Lloyd et al., 2013).

Acceptance and Commitment Therapy (ACT)

ACT is a psychological intervention that uses acceptance and mindfulness exercises, together with commitment and behaviour change strategies, to increase psychological flexibility. Psychological flexibility involves contacting the present moment fully as a conscious human being, and based on what the situation affords, changing or persisting in behaviour in the service of chosen values (Flaxman & Bond, 2010b). ACT aims to teach the following strategies: cognitive defusion (i.e. observing the arbitrary, automatic and programmed challenging events and the private experience they stimulate), mindfulness and conscious contact with the present moment, and the ability to define values and engage in actions that are consistent with those values. A growing literature implies that psychological flexibility may promote sensitivity to, and contact with, contingencies of reinforcement that bear on chosen values, making it useful in the work setting (Bond, Hayes & Barnes-Holmes, 2006). It has been suggested that when workers are more willing to experience their distressing thoughts and feelings, to remain aware and in contact with situations that are present during their work, and to keep track of their chosen values in their behaviour, they are more likely to function effectively and experience better health (McCraken & Yang, 2008). To date nine published studies have investigated the use of work-based ACT interventions (Bond & Bunce, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a; Flaxman & Bond, 2010b; Hayes et al., 2004; Kishita & Shimida, 2011; Lloyd et al., 2013, Ruiz, Rios & Martin, 2008; Stafford-Brown & Pakenham, 2012).

Research highlights the fundamental relationship between psychological flexibility and workplace behaviours (Lloyd et al., 2013). Higher levels of psychological flexibility correlate with and predict better mental health (Bond & Bunce, 2003; Bond & Flaxman, 2006; Brinkborg et al., 2011; McCraken & Yang, 2008; Stafford Brown & Pakenham, 2012), improved learning and job performance (Bond & Bunce, 2000; Bond et al., 2006; Bond & Flaxman, 2006; Hayes et al., 2004**)**, reduced worker stress (Bond & Bunce, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a; Flaxman & Bond, 2010b; Noone & Hastings, 2010; Stafford-Brown & Pakenham, 2012), and reduced burnout, including emotional exhaustion, depersonalisation and personal accomplishment (Brinkborg et al., 2011; Hayes et al., 2004; Lloyd et al., 2013, Ruiz et al., 2008; Vilardaga et al., 2011).

Research suggests that increased psychological flexibility acts as a mediator to these improvements (Bond & Bunce, 2000; Flaxman & Bond, 2010a; Lloyd et al., 2013; Stafford-Brown & Pakenham, 2012). The effects from ACT-related concepts i.e. acceptance, mindfulness and value based processes have been found even after controlling for other work factors i.e. job control, negative affectivity and locus of control (Bond & Bunce, 2003; Vilardaga et al., 2011).

Research has not investigated whether a work-based ACT intervention can enhance work engagement. This study investigates the feasibility of using ACT at Work Training (ACT_w) to improve mental well-being and enhance work engagement in mental health staff working in NHS Lanarkshire (NHSL). In accordance with the Medical Research Council guidelines, this will be a phase three controlled feasibility trial.

The parameters of this feasibility trial were formulated around the PICO framework (Richardson, Wilson, Nishikawa & Hayward, 1995):

1. **Population:** Can an appropriate group from NHSL mental health staff be recruited? This will be determined by ascertaining whether participants can be identified and consented to participate in the trial. Stress levels of individuals will also be considered.

2. **Intervention:** Will ACT_w Training be acceptable to NHSL mental health staff? This will be determined by measuring training attendance and analysing completed training feedback.

3. **Control:** Can an appropriate group of NHSL mental health staff be recruited as a control and followed up in parallel to the intervention group; to facilitate as a comparison? Completion of outcomes measures will be considered.

4. **Outcomes:** Can we identify measures to assess the impact of ACT_w on changes in mental well-being and work engagement? Efforts will be made to identify treatment signals in the outcome and therapy-specific measures.

Method

Design

This study was a prospective, non-randomised, cohort controlled, repeated measures design exploring the feasibility of implementing ACT_w to improve mental well-being and foster work engagement in NHSL Mental Health Staff.

Participants

52 staff volunteered, of which 45 completed consent and participated. Participants were included if they worked in a NHSL mental health team; including all occupational groups. Exclusion criteria included a minimum time in post (i.e. 3 months), to minimise the potential confounding impact of transitioning into a new post. The mean age of the participants was 45 years (range = 24 – 61, SD = 9.179), 41 were female (91.1%) and 4 male (8.9%). The professional breakdown of participants was as follows; 12 Nursing (26.7%), nine Physiotherapy (20%), nine Occupational Health (20%), five Speech and Language (5%), four Occupational Therapy (8.9%), three Dietetics (6.7%) and three Psychology (6.7%).

Table 1 compares the participants who were allocated to ACT_w with the control group. There were no significant differences between groups in terms of age or gender.

[Table 1]

Recruitment Procedures

Researchers met with Mental Health Managers in NHSL to present proposed research, highlighting the efficacy of ACT_w on mental well-being and burnout. Managers endorsed potential staff involvement and identified departments. Initially this study was proposed as a Randomised Controlled Trial (RCT), with the plan to recruit participants and randomly allocate them to ACT_w or a wait-list control. Therefore, all employees in identified departments were invited to participate. Information about the research was advertised using posters in the workplace (see App 2.2). E-mails disseminating research information and inviting individuals to participate were sent to all managers for circulation to other staff. The researcher attended multi-disciplinary team meetings to promote research and answer questions. A participant information sheet (see App 2.3) was circulated to all interested individuals and participants signed informed consent (see App 2.4).

Due to recruitment problems, the study design changed to a quasi-experimental design, incorporating a cohort control. Feedback in the initial stages of recruitment identified genuine interest in the training coupled with an inability to commit to training due to work demands. It

was envisaged that individuals may have been willing to act as a control (i.e. opting to spend a short time completing questionnaires opposed to committing to nine hours of training). Therefore, all of the individuals recruited at that point were assigned to the ACT_w intervention. Following an amendment to ethics, additional individuals were recruited to the control arm. E-mails disseminating research information and inviting individuals to participate as controls were sent to all managers for circulation to other staff. A control participant information sheet (see App 2.5) was circulated to all individuals who voiced an interest and participants signed informed consent (see App 2.6).

Ethical Approval

Research approval was gained from NHSL Research and Development Department (Ref: L12049) (see App 2.7) and Glasgow University College of Medical, Veterinary and Life Science Ethical Committee (Ref: 200120003) (see App 2.8). Participants' anonymity and confidentiality was paramount. Individuals were reminded that they could withdraw from the study at any point. It was emphasised that participation, non-participation and withdrawal would not impact on current/future employment. If individuals presented with elevated stress they were sign-posted to their GP and/or to seek guidance within the organisation.

Arms of the Study

ACT_w: was delivered in a group format over three sessions (two on consecutive weeks, the third a month later). The training was delivered to groups between 8-10 employees during working hours. Participants worked in different geographical locations, therefore a central training location was selected. ACT_w was led by researcher (KM) plus one other co-facilitator. Training adhered to standardised protocol designed for group worksite interventions: *ACT at Work* by Bond & Hayes (2002), which aims to teach people the following psychologically flexible strategies: cognitive defusion (i.e. observing the arbitrary, automatic and programmed nature of thinking); the acceptance of, rather than the avoidance of challenging events and associated private experiences (e.g. anxiety); mindfulness and conscious contact with the present moment; and the ability to define values and engage in actions consistent with those values). Training consisted of various metaphors, mindfulness and cognitive defusion techniques, as well as values exploration and goal clarification in order to establish what is important in their lives and help individuals to behave in a way that promotes this (see App 2.9 for training content). Training was accompanied by homework assignments, handouts and a CD of experiential exercises to practise. Participants were asked not to discuss the training with anybody in their organisation for the study duration. Facilitator (KM) attended training outlining the Bond and Hayes (2002) programme. All sessions were audio recorded and competence and fidelity were assessed by an ACT expert.

Control subjects: These individuals did not receive ACT_w. They were assessed in the same format, in parallel, at the same time points as those receiving ACT_w.

Procedure

Once individuals consented to participate, those recruited to the ACT_w arm were scheduled to attend a particular training group and were e-mailed details of training dates and location. All participants were allocated a number at recruitment to ensure anonymity. Participants allocated to ACT_w met with the researcher and co-facilitator for three 3-hour sessions. The ACT_w groups ran over a five-month period. Assessment measures were completed with all participants at Baseline, 6 weeks (Time 2) and 10 weeks post-baseline (Time 3). Participants allocated to ACT_w completed the Baseline measures prior to session one and the Time 2 measures prior to session 2. Time 3 assessments were distributed and returned via NHSL internal mail. If an individual in the treatment arm missed session three, questionnaires were sent via internal mail. Assessment measures for the control participants at each of the three time-points were distributed and returned via internal mail.

Measures

Utrecht Work Engagement Scale (UWES-17; Schaufeli & Bakker, 2003). This 17-item scale measures vigor, dedication and absorption. Respondents are asked to consider how they feel about their current employment. Items include "At my work, I feel that I am bursting with energy" (vigor), "I am enthusiastic about my job" (dedication) and "I am immersed in my work" (absorption). Respondents indicate how often they feel this way on a seven-point Likert scale from 0 (never) to 6 (always every day). Cronbach's α range between .80 and .90 (Schaufeli & Bakker, 2003).

Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale (MOAQ:JSS, Cummann, Fichman, Jenkins & Klesh, 1979) was used to measure participants' intention to seek a new post. Responses are rated on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Internal consistency reliability is .84 and the mean test–retest reliability is .50 (Bowling & Hammond, 2008).

General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988). This 12-item self-report scale measures mental health. Respondents are asked to indicate whether they have recently experienced a range of common symptoms of distress (e.g., "Have you recently... lost much sleep over worry?). Responses are rated on a four-point scale (e.g. not at all to much more than usual). A higher score indicates more mental health problems (0 – 36 points). Cronbach α are 0.90 and 0.93 (Flaxman & Bond, 2010b). The Likert scoring method was used to optimise statistical comparison with other measures. In order to determine the caseness of the population, the binary scoring methodology (0,0,1,1) and the cut-off '6' advocated by Goldberg et al., (1997) was utilised.

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) identifies caseness of anxiety and depression. The HADS has an anxiety (HADS-A) and a depression (HADS-D) subscale both containing seven intermingled items. Respondents are asked whether they have recently experienced anxiety (i.e. worrying thoughts constantly go through my mind) or depressive (i.e. I still enjoy the things I used to) symptoms on a four-point scale (e.g. not at all to most of the time). A higher score is indicative of anxiety/depression. Cronbach's α for HADS-A varied from .68 to .93 (mean .83) and for HADS-D from .67 to .90 (mean .82) (Bjelland, Dahl, Haug & Necklemann, 2001).

Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). This seven item scale measures psychological flexibility. Respondents are asked to rate how true each statement is for them (i.e. I'm afraid of my feelings) on a seven-point Likert scale from 1 (never true) to 7 (always true). High scores on the AAQ-II reflect greater experiential avoidance and immobility,

while low scores reflect greater acceptance and action. The mean α coefficient is 0.84 (0.78 - 0.88), and the 3 and 12 month test-retest reliability is 0.81 and 0.79 (Bond et al., 2011).

Valuing Questionnaire (VQ: 8 item; Smout, Burns & Christie, 2011). This measures the extent to which people think they have lived their values in the last week: "I continued to get better at being the kind of person I want to be" and the extent to which cognitive and emotional barriers interfered with enacting values in past week: "I tried to work towards important goals, but something always got in the way". Respondents are asked to rate statements on a seven-point Likert scale from 0 (not at all true) to 6 (completely true). Reliability data not published (see App 2.10).

Absenteeism: Absence rates measured for the two months before and after baseline measures.

Training Evaluation: A self-administered questionnaire (see App 2.11) developed specifically for this study was completed by ACT_w participants to gain feedback in regard to their thoughts about training. Questionnaire consists of six questions to be answered on a rating scale and five open-ended questions.

Sample Size Justification

No previous research exists using ACT_w for work engagement to complete sample size justification. As this is a feasibility study, we are keen to establish parameters for power and sample size for future studies. However, a sensitivity analysis of sample size requirement was completed, utilising a study by Lloyd et al. (2013). This study measured the effect of ACT_w on stress levels and psychological flexibility. Stress was measured with the GHQ-12. This study documented a statistically significant reduction in stress ($\mu = 0.2526456$), therefore this was inputted as the effect size. G-power 3 software (Faul, 2010) established the following sample sizes would be required for the study to reach the following statistical power values (assuming $\alpha = 0.05$):

Power	0.80	0.85	0.90	0.95
Sample Size	34	38	44	54

Data Analyses

Kolmogorov-Smirnov analyses were conducted to determine if variables were normally distributed. Where normality assumptions were not met, data was transformed. Independent group tests and Chi Squared analysis were administered to compare between-group differences between the ACT_w group and controls at Baseline for normally distributed variables. The non-

parametric equivalent of an independent t-test (Mann Whitney U) was used to determine differences between the ACT_w group and control group on Baseline variables not normally distributed. Feedback-form data was collated utilising descriptive statistics. A mixed factor 2 x 3 ANOVA was used to determine whether there were significant differences between how individuals from the two groups (ACT_w vs control) changed in the various outcomes and therapy-specific measures, across the three time points. Arm of study (ACT_w vs. control) served as the between-subjects factor and time (Baseline vs. Time 2 vs. Time 3) as the within-subjects factor. Where main or interaction effects were found, within- and between-subjects planned contrasts were analysed (simple effect tests were carried out). As some data did not meet normality assumptions, results should be interpreted with caution. The Spearman's Correlation co-efficient (one-tailed) was used to test associations between the outcome and therapy-specific measures at Baseline and change scores for these variables between Baseline and Time 3 for all participants. In order to reduce the risk of Type 1 errors the Bonferroni correction was applied to the correlation analyses. Missing data was imputed utilising the SPSS multiple data imputation and analysis programme which generates possible values for missing data. Analytic procedures produce output for each "complete" dataset, plus pooled output that estimates what the results would have been if the original dataset had no missing values. These pooled results are generally more accurate than those provided by single imputation methods (IBM Statistics, 2013).

Results

Recruitment and Attrition

Figure 1 outlines the number of individuals invited to participate, the number who volunteered, consented and thereafter the number who completed training and outcome measures.

Initially, 52 individuals volunteered to participate, 30 in ACT_w and 22 as a control. Forty-five participants (25 ACT_w & 20 control) provided informed consent to participate (86.5%). Of those who volunteered but did not consent, reasons included; unable to swap shift, scheduled annual leave, training dates unsuitable, limited notice, and heavy work-load.

Attrition criteria included non-attendance at one or more of the three training sessions, and/or failure to return post-intervention measures. Nine (36%) of the 25 ACT_w participants did not complete the full complement of training, with six (24%) missing one session and three (12%) missing two. Reasons included sickness, bad weather, bereavement, heavy work-load, and competing work demands.

Altogether, eleven participants (24%) (six ACT_w & five controls), failed to return Time 2 and Time 3 measures. Seven (16%) (four ACT_w & three controls) missed one time point and four (9%) (two ACT_w & two controls) missed two time points.

Table 2 provides a comparison between the two groups on baseline measures. There were two significant differences. The median MOAQ-JSS score in the ACT_w group (Median = 5, IQR = 3 – 8) was significantly higher than the control group (Median = 3, IQR = 3 – 4.75) at baseline, U = 156.500, z = -2.258, p = 0.024 <0.05. The median number of days' absence in the ACT_w group (median = 0, IQR = 0 – 2.25) was significantly higher than the control group (median = 0, IQR = 0 - 0), U = 71.5, z = -2.411, p = 0.16 < 0.05, r = -0.42.

[Insert Table 2]

Table 3 provides a comparison between those who completed questionnaires and those who did not. There were no significant differences between the groups.

[Insert Table 3]

Level of Stress Exhibited by Staff

At baseline assessment, the mean GHQ-12 scaled score was 2.4 (SD = 2.417) for the ACT_w participants and 1.9 (SD = 3.3) for control participants. Thus, two ACT_w (8%) and two control (10%) participants met threshold for stress when the advocated binary scoring system and cut-off score of '6' was administered (Goldberg et al., 1997).

At baseline assessment, the mean UWES-17 scaled score was 4.2 (SD = .7756) for the ACT_w participants and 4.4 (SD = .7956) for control participants. Thus, two ACT_w (8%) and one control (5%) met threshold for 'low' and 'very-low' according to norm data (Schaufeli & Bakker, 2003).

Staff Feedback: Eighteen out of 25 (72%) ACT_w participants completed feedback. Three participants (17%) noted that the room facilities were "excellent", 13 (72%) noted that they were "good" and two (11%) indicated a "neutral response". Thirteen participants (72%) noted the facilitation was excellent, five (28%) indicated it was good. All participants indicated information quantity was "just right" and the quality was at the "right level". Overall, 14 participants (77%) summarised the training as "very useful" and four (23%) as "slightly useful". When asked whether they would recommend training to a friend, 17 (94%) indicated "yes". No participants indicated anything had been missed from the sessions. Participants highlighted that they would like more time for: "discussion", "mindfulness and value based exercises", "the background to ACT", "examples of its efficacy" and "more training and/or regular follow up". Participants found the "practical experiential exercises", "acceptance skills", "discussing values", "goal setting" and "CD practice" most helpful. One participant indicated a particular acceptance exercise as unhelpful. Other comments indicating that participants enjoyed the group, some identified the need for more prompting in some exercises and others highlighted problems with venue. Finally, two individuals commented that facilitation of experiential exercises was "too formal and read too quickly".

Comparisons of Change in Measures between ACT and Control Group

Intervention effects

ANOVA analyses indicated that there were no significant main effects of time x arm of study, indicating that the outcome and therapy-specific measures across the three time points for the ACT_w and control group were not significantly different. However, there were two significant simple main effects of time x arm of study in the mean scores between Time 2 and Time 3 for GHQ-12, F (1,43) = 5.48, p .024, r = .34, η_p^2=.1, and VQ-8, F (1,43) = 5.542, p 0.023, r = .34, η_p^2=.11. Annotated graphs display the ACT_w and control group's mean scores over three time points, indicating that the ACT_w group's mean outcome scores decreased between Baseline to Time 2 and Time 3 (post-treatment) for the MOAQ-JSS, GHQ-12, HADS-A, HADS-D and

AAQ-II. While overall increases were noted in the UWES-17 total, UWES-17 subscales and VQ-8 scores. The control group's mean scores increased over the three time points for the MOAQ-JSS. The GHQ-12 mean score initially decreased between Baseline and Time 2, then increased between Time 2 and Time 3. HADS-A and HADS-D mean scores decreased over the three time points. The UWES-17 total and subscales vigor, dedication and absorption mean scores, initially decreased between Baseline and Time 2, then increased between Time 2 and Time 3 (however, never returning to initial score). Finally, the AAQ-II mean score decreased over the three time points, while the VQ-8 mean score initially increased between Baseline and Time 2 and then decreased back to the original score between Time 2 and Time 3.

[Insert Annotated Graphs]

There were significant main effects of time on GHQ-12, HADS-A, AAQ-II, VQ-8 and absence rates, which indicate significant differences on all participant outcome scores between time points.

GHQ-12: Analyses revealed a significant main effect for time, $F(2,86) = 8.781$, $p = .001$. Simple effects tests indicated individuals scored higher at Baseline, than at Time 2. Furthermore, simple effect tests denote a significant time x arm of study interaction ($F(1,43) = 5.48$, $p = 0.024$, $r = 0.11$) indicating the control participants' mean scores increased between Time 2 and Time 3, while the ACT_w participants' mean scores decreased.

HADS-A: Analyses revealed a significant main effect for time, $F(2,86) = 7.906$, $p = .001$. Simple effect contrasts highlight a significant decrease between Time 2 and Time 3, $F(1,43) = 11.416$, $p = .002$, $r = 0.21$. However, there was no significant main effect of time x arm of study interaction.

AAQ-II: Analyses revealed a main effect for time, $F(2,86) = 5.090$, $p = .011$. Simple effect tests noted a significant reduction between Baseline and Time 3, $F(1,43) = 10.638$, $p = .002$, $r = 0.2$, and Time 2 and Time 3, $F(1, 43) = 8.906$, $p = 0.005$, $r = 0.17$. Both ACT_w and control groups' mean AAQ-II score decreased over both time points. However, there was no significant main effect of time x arm of study interaction.

VQ-8: Analyses did not reveal any significant main effects, however, the simple effect tests highlighted a significant difference between the groups on mean VQ-8 scores between Time 2 and Time 3, $F(1,43) = 5.542$, $p = .023$, $r = 0.12$. The ACT_w group's mean VQ-8 scores increased between Time 2 and Time 3, whereas the control group's decreased.

Absence: Analyses did not reveal significant difference between the average absence rates of ACT_w and control over the two time points.

Despite the lack of significant results in all outcome and therapy-specific measures for the time x arm of study interaction, estimates of effect size (partial eta square, η_p^2) have been considered. Noted η_p^2 values indicate small effect sizes in the GHQ-12, HADS-A, HADS-D, UWES-17 Total, dedication, absorption, and VQ-8 measures. Medium effects were noted in MOAQ-JSS and vigor (see Table 4).

Correlation Analyses

[Insert Table 5]

Baseline correlations between outcome and therapy specific measures: Table 5 outlines the associations between outcome and therapy-specific measures. The AAQ-II had significant positive correlations with the MOAQ (ρ = .64, p = .000), GHQ-12 (ρ = .56, p = .000), HADS-A (ρ = .35, p = .009) and HADS-D (ρ =.35, p = .000). Furthermore, the AAQ-II had significant negative correlations with the UWES-17 (ρ =-.29, p = .025) including vigor (ρ = -.35, p = .009) and dedication (ρ = -.41, p = .003). The VQ-8 had significant negative correlations with MOAQ (ρ = -.54, p = .000), GHQ-12 (ρ = -.64, p = .000), HADS-A (ρ = -.38, p = .005) and HADS-D (ρ =-.50, p = .000). Additionally, the VQ had significant positive correlations with the UWES-17 (ρ = .49, p = .000) including vigor (ρ = .57, p = .000) and dedication (ρ = .54, p = .000).

Correlations between outcome and therapy-specific measure change scores (baseline to Time 3): Analyses revealed changes in AAQ-II scores were significantly positively correlated to changes in GHQ-12 (ρ = .29, p = .025) and HADS-D (ρ = .39, p = .004). Furthermore, changes in AAQ-II scores were significantly negatively correlated with changes in UWES-17 dedication (ρ = -.3, p = .023). Changes in VQ-8 scores were significantly negatively correlated with changes in GHQ-12 (ρ = -.44, p = .001), HADS-A (ρ = -.35, p = .009) and HADS-D (ρ = -.44, p = .001). Furthermore, changes in VQ-8 scores were significantly positively correlated with changes in the UWES-17 total score (ρ = .52, p = .000), including vigor (ρ = .59, p = .000), dedication (ρ = .51, p = .000) and absorption (ρ = .43, p = .002).

Calculating numerous correlations increases the risk of a type I error, i.e. to erroneously conclude the presence of a significant correlation. To avoid this, threshold levels of significance for correlation co-efficients were adjusted for multiple comparisons utilising Bonferroni's correction (i.e. p-value <0.003, indicated in bold in Table 5). Overall, 25 of the 32 correlation co-efficients were significant, 15 at p-value <0.003, 22 at p-value <0.01 and 25 at p<0.05.

Discussion

This feasibility trial of ACT_w for mental well-being and work engagement is the first to explore the implementation of ACT_w within NHS Scotland, with previous research predominantly focussing around private sector working life (Brinkborg et al., 2011). It is also the first study to examine the impact ACT_w has on work engagement.

Population: Can an appropriate group from NHSL mental health staff be recruited?

This study has evidenced that NHSL management were agreeable to the implementation of ACT_w with employed staff. Management highlighted specific services where the study could recruit, however a low proportion of individuals initially volunteered to participate in the training. The low rate of recruitment prevented the randomisation of participants into the trial. Of individuals who initially volunteered, 13.5% were unable to participate due to work-related demands, and upcoming annual leave. ACT_w sought to enhance an individual's ability to deal with work-related stress; however, there is less focus on addressing organisational factors that give rise to this work-related stress (Bond & Bunce, 2000). There is a potential impact on individuals' motivation to participate in training if it does not combat both individual and organisation change (Flaxman & Bond, 2010b). Furthermore, Flaxman and Bond (2010b) deem it unethical to conduct SMI to teach individuals to cope, and then return them to a toxic situation. Future research may wish to explore why uptake was low given the high stress levels identified in the literature (Brady et al. 2012; Maslach & Jackson, 1981). It may be helpful to consider a more comprehensive approach incorporating change at an organisation level (Flaxman & Bond, 2010b; Brinkborg et al., 2011), at least in terms of helping staff access training.

Four (9%) of participants recruited met criteria for high stress, as indicated by threshold levels advocated by Goldberg et al. (1997). Furthermore, only three participants (7%) met criteria for 'low' or 'very low' criteria in the work engagement scale indicated by 'norm' data advocated by Schaufeli & Bakker (2003). Future research may wish to consider how to engage individuals who have elevated stress levels or low levels of work engagement. For example, ACT_w could be offered through Occupational Health Departments to individuals who have been identified as stressed.

Intervention: Was ACT_w acceptable?

Almost two-thirds (64%) of the ACT_w participants attended all sessions, with 24% missing one and 12% missing two of the three sessions. Missed sessions were related to personal factors (i.e. sickness and bereavement), and work-related factors (i.e. heavy work-load and competing work demands). Participants responded favourably to the facilitation and the quantity and quality of the information provided in training. Furthermore, over three-quarters stated the training was

'very useful' and 94% would recommend the training to a friend. Fewer participants were favourable towards the training venue. Participants made helpful suggestions about how the ACT_w intervention could be improved e.g. allocating more time to spend on exercises and discussion, additional training and/or follow-up sessions. Overall however, it seems that ACT_w was acceptable to participants who completed training.

Control: Can an appropriate control be recruited?

Recruited issues at the outset of the trial meant that participants could not be randomly assigned to the control arm of the study. Control participants were subsequently recruited in parallel to those assigned to ACT_w. There were no significant differences between groups in terms of age and gender. In regard to baseline outcome measures, there were two significant differences noted in job satisfaction and absence rates. In terms of questionnaire completion, 75% of control participants completed outcomes measures at the three time points, a comparable amount to the ACT_w group. In summary, despite minor differences at baseline, the control group acted as a reasonable comparison to the ACT_w group, with similar levels of success in retaining participants for post-baseline assessments in both groups. Further exploratory analysis could be conducted to ascertain whether significant differences noted at baseline had an influential impact on non-significant differences noted in the mixed ANOVA analysis.

Participant attrition is not uncommon in evaluations of worksite SMT and a number of factors can influence attendance and questionnaire response rates (e.g. work scheduling, workload, leave and sickness). Barriers to participation have not been widely examined and may warrant further investigation (Bond & Flaxman, 2010a).

Outcome: Can measures be identified to assess impact of ACT_w? Are there identified treatment signals in outcome and therapy-specific measures?

Following a review of ACT work-related stress literature (Bond et al. 2006) a range of candidate outcome measures were included in the trial that assessed job satisfaction, stress, anxiety, depression, and work engagement. Therapy-specific measures assessing psychological flexibility and value based living were also included.

Analyses indicated that there were no significant differences between the two arms of the study in how participants scored on the outcome and therapy specific measures across the three time points. However, between Time 2 and Time 3 the ACT_w participants noted a significant reduction in stress scores and a significant increase in valued living relative to the control group. The significant improvement noted in stress scores between Time 2 and Time 3 is similar to previous research identifying that participation in ACT_w predicts better mental health (Bond & Bunce, 2003; Bond & Flaxman, 2006; Brinkborg et al., 2011; McCraken & Yang, 2008;

Stafford Brown & Pakenham, 2012). However, the overall lack of statistically significant differences between groups changes in work engagement across the study is not consistent with results which highlight a reduction in burnout (Brinkborg et al., 2011; Hayes et al., 2004; Lloyd et al., 2013, Ruiz, et al., 2008; Vilardaga et al., 2011). It may be that changes in the control group indicative of 'spontaneous' improvement' may be obscuring treatment effects in the ACT_w group. Flaxman and Bond (2010a) indicate possibilities for this phenomenon including; seasonal effects and the potential effect of responding to stress and coping measures. The impact of potential confounds (such as changes in work and personal behaviours) also cannot be excluded (Stafford-Brown & Packenham, 2012).

Forty-five individuals participated in this trial, according to the power calculation this would lead to a power value of 0.90. A larger sample recruiting 54 people would reach a higher level of statistical power ($\alpha = 0.05$). The small sample may have prevented possible differences reaching statistical significance. Analyses indicated that only a small proportion of participants recruited to the trial were stressed at baseline. This may have given rise to 'flooring effects' making it difficult to evidence an intervention effect. Previous studies have outlined that the ACT_w effect can be moderated (or diluted) by participants' level of stress at baseline (Bunce & Stephenson, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a). Sample heterogeneity implicit in work-site samples is often neglected and an increased awareness may be helpful in this field (Bunce, 1997). Future trials should consider screening individuals to determine if they meet particular criteria for high stress levels and/or low levels of work engagement. If individuals are included in a future trial on this basis, it will be important to guard against the risk of individuals feeling stigmatised.

Overall, few significant results are provided in support of potential treatment signals in changes in outcome and therapy-specific measures. However, there was a direction of change indicative of ACT_w having a potential impact on outcome and therapy-specific measures. Furthermore, although p-values did not note significance, η_p^2 scores indicated small and medium effect sizes in the time x arm of study interaction. These effect sizes must be interpreted with caution, as they cannot be applied to the wider population, however, within this study there is some indication of treatment signal, including the effect of treatment on work engagement factors. It is possible that many individuals with elevated levels of work-related stress, and/or low levels of work engagement, felt unable to consent to participate in the research. Future research should focus on identifying and engaging individuals of this type in the research.

The relationship between changes in outcome and therapy-specific measures was also considered. The therapy-specific measures, psychological flexibility and value based living were significantly correlated with ratings of work, stress, mental health and work engagement at

baseline. As expected, psychological flexibility was significantly negatively correlated with job dissatisfaction, poorer mental health, and higher levels of depression and anxiety; it was significantly positively correlated with higher work engagement, including vigor and dedication. Similarly, higher scores indicating living life more fully in accordance with values significantly positively correlated with job satisfaction, and significantly negatively correlated with higher levels of stress, anxiety and depression. These high scores also significantly positively correlated with higher work engagement, including vigor and dedication. Furthermore, change scores for the outcome measures between Baseline and Time 3 continued to correlate with therapy-specific measures in the expected direction as highlighted above. Results remained significant at the Bonferonni corrected level. It is important to remain mindful of the limitations when administering the Bonferroni correction, as there can be an increased risk of type 2 errors i.e. the risk that significant correlations are adjusted to be non-significant.

Despite significant correlations outlined, no causal conclusions can be confirmed on the direction of these relationships. Limitations due to sample size preclude the ability to conduct multiple linear regression to determine which variables predict variance in work engagement and mental well-being. This could be a useful analysis in future research.

Limitations

This study has several limitations. Firstly, the numbers of participants recruited were small. This had implications for the statistical analyses that could be undertaken and the associated conclusions that could be drawn. A further drawback in the study is that few participants met caseness for high stress and low work engagement at baseline, leaving little scope for improvement. Secondly, despite initial intentions, this study could not be conducted as an RCT due to recruitment problems; therefore, participants were not randomised to control or treatment. Although there were no significant differences in terms of age and gender, and minimal differences on baseline measures, the lack of randomisation means that other unmeasured potential differences may have affected outcome. Thirdly, it is important to be mindful that some individuals attending the ACT_w groups missed sessions. In addition, a proportion of individuals in both arms of the study missed assessment points. As such, data had to be imputed. Data imputation has important implications for the veracity of subsequent analyses that are conducted. Multiple imputation is considered superior to other approaches for analysing complete data sets as it takes into the account the uncertainty due to missing data (Flaxman & Bond, 2010a; IBM Statistics, 2013). However, attrition rates, and reasons for attrition, warrant consideration when interpreting findings. It may be beneficial for future studies to consider ways to optimise retention of individuals in trials of this nature. For

example, optimising questionnaire feedback may include introducing an electronic version for those with remote access to a computer.

Conclusions

This feasibility trial evidenced that despite challenges, individuals could be recruited to ACT_w; that ACT_w was an acceptable intervention for this population and that a control group could be successfully recruited. The ability to conduct an RCT was hampered by initially slow rates of recruitment, but future research could address this by agreeing with the organisation to ring-fence time for employees to participate. This study noted two significant differences between the ACT_w and control group between Time 2 and Time 3 on stress and valued living, with the ACT_w group indicating a positive reduction in stress and increase in value based living. Unfortunately, no other statistical results indicated efficacy of ACT_w. It is important to remain mindful that the individuals recruited had relatively low levels of stress and high levels of work engagement, minimising room for improvement. There is some evidence that changes in mental well-being and work engagement for all participants were correlated with changes in therapy-specific measures assessing psychological flexibility and value based living. Further research is needed to assess the meditational relationship between these measures. We believe that the results of this current study merit conducting a larger trial of ACT_w for health professional staff. Such a trial may benefit from expanding recruitment to a number of services, to maximise uptake. Future studies may wish to target services with notably higher rates of stress, potentially through actively targeting Occupational Health Department.

Table 1: Demographic Information about Participants

Demographic Variable		**ACT_w (n=25)**	**Control (n=20)**	**P-value**
Gender	Female	23	18	1.000
	Male	2	2	
Mean Age (years)		48.32	41.90	0.549

Figure 1: Recruitment and Attrition Numbers

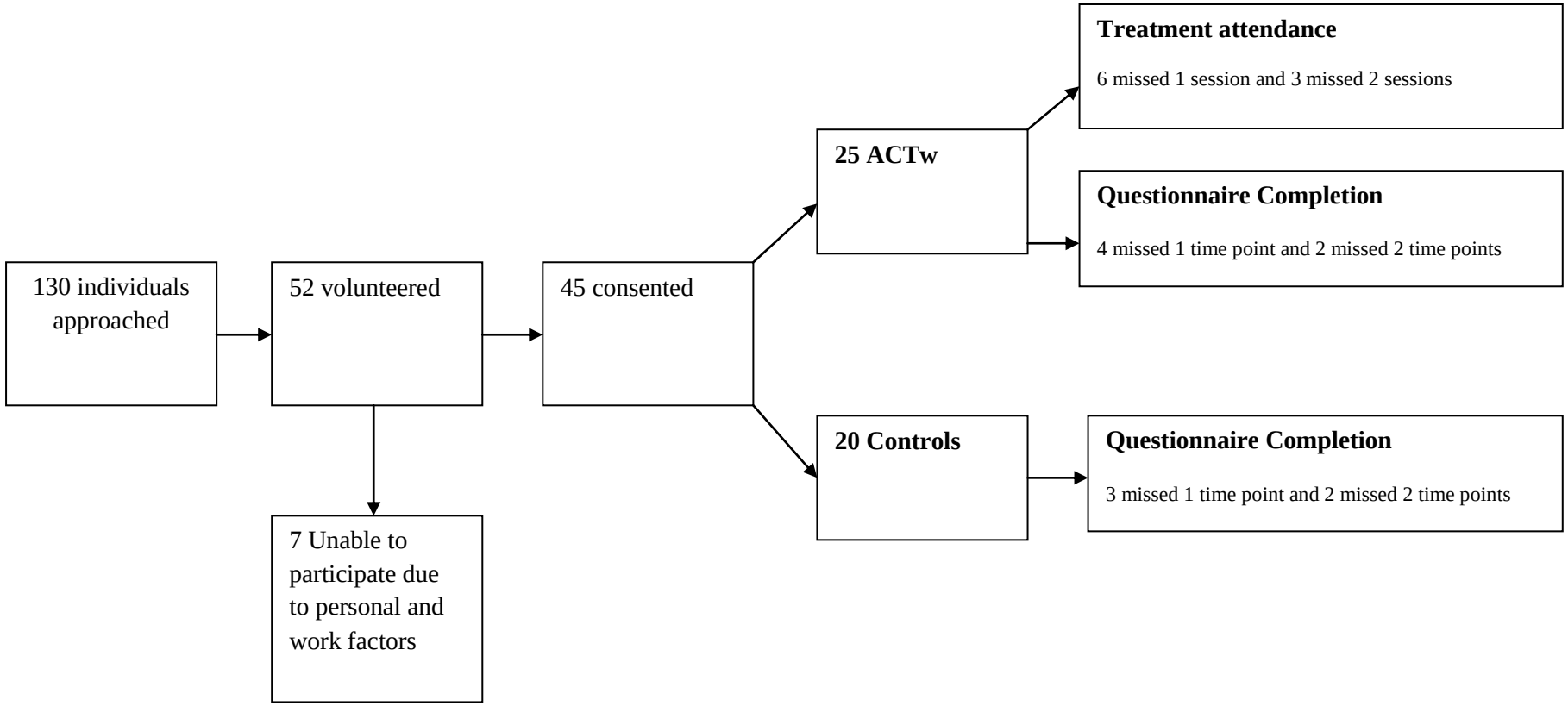


Table 2: Mean (SD) and median (IQR) scores on baseline outcome and therapy-specific measures

		ACT_w (n = 25)	**Control (n=20)**	**P-value**
MOAQ:JSS$^{\Psi}$	Total	5 (3-8)	3(3-3.475)	.024*
GHQ-12	Total	12.2 (3.42)	11.35(5.11)	.834
HADS	HADS-A	4.36(3.43)	5.00(4.30)	.444
	HADS-D	3.12 (2.26)	4.05 (3.49)	.737
UWES-17	Total	70.96 (13.08)	74.1 (18.21)	.900
	Vigor	24.8 (5.08)	26.25 (5.05)	.975
	Dedication	21.6 (4.85)	23.8(5.22)	.966
	Absorption	24.48 (4.56)	24.1(6.26)	.270
AAQ-II	Total	15.6 (6.79)	14.7(7.02)	.746
VQ-8	Total	31.32(9.57)	34.40(8.04)	1.834
		ACT_w (n = 22)	**Control (n=11)**	**P-value**
Absence Rate $^{\Psi}$	Total	0 (0-2.25)	0 (0-0)	.016*

$^{\Psi}$ Non-parametric tests used, therefore, medians noted. * Denotes $p < 0.05$.

Notes: MOAQ-JSS = Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale; GHQ-12 = General Health Questionnaire; HADS = Hospital Anxiety and Depression Scale; UWES-17 = Utrecht Work Engagement Scale; AAQ-II = Acceptance and Action Questionnaire; VQ-8 = Valuing Questionnaire.

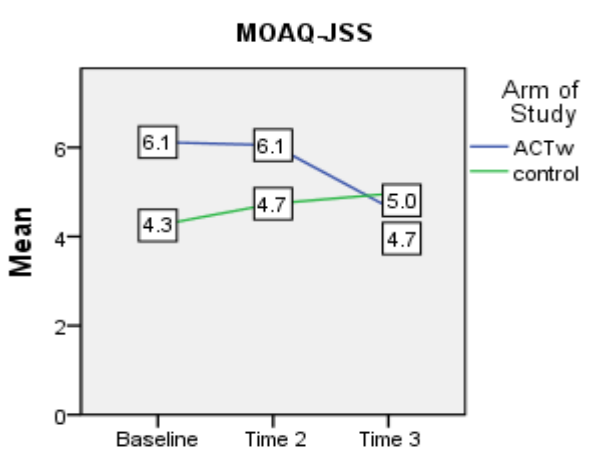
Table 3: Mean (SD) and median (IQR) scores on baseline outcome and therapy-specific measures for questionnaire completers and non-completers.

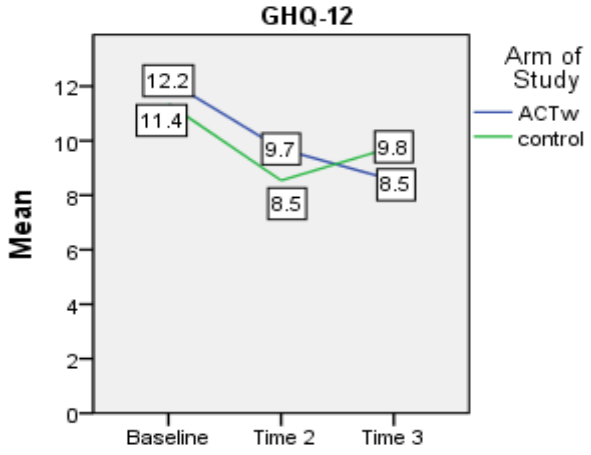
		Questionnaire completers (n = 34)	Missed 1 or 2 questionnaires (n = 11)	P-value
MOAQ:JSS[Ψ]	**Total**	4 (3-8)	3(3-7)	0.485
GHQ-12[Ψ]	**Total**	11.5 (9-14.25)	12.00 (11-14)	0.614
HADS	**HADS-A**[Ψ]	4(1-7.25)	7 (2-9)	0.188
	HADS-D[Ψ]	2 (1-4.25)	5(2-8)	0.79
UWES-17	**Total**	70.53 (12.62)	78 (14.20)	0.735
	Vigor	24.91(4.69)	27.27 (6.04)	0.313
	Dedication	22.06 (4.84)	24.18 (5.23)	0.832
	Absorption	23.59 (5.01)	26.5 (5.63)	0.485
AAQ-11[Ψ]	**Total**	14.5 (9.75 – 23.50)	11 (9-15)	0.135
Valuing Questionnaire	**Total**	33 (7.99)	31.73 (12.08)	0.059

[Ψ] Non-parametric tests used, therefore, medians noted.

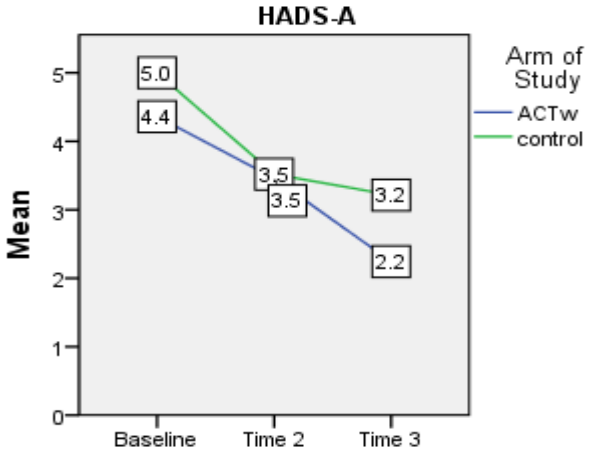
Notes: MOAQ-JSS = Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale; GHQ-12 = General Health Questionnaire; HADS = Hospital Anxiety and Depression Scale; UWES-17 = Utrecht Work Engagement Scale; AAQ-II = Acceptance and Action Questionnaire; VQ-8 = Valuing Questionnaire.

Annotated Graphs: Mean Outcomes Scores at Three Time Points

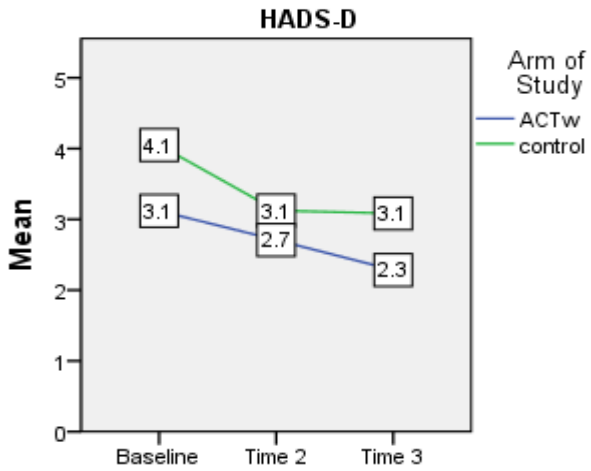


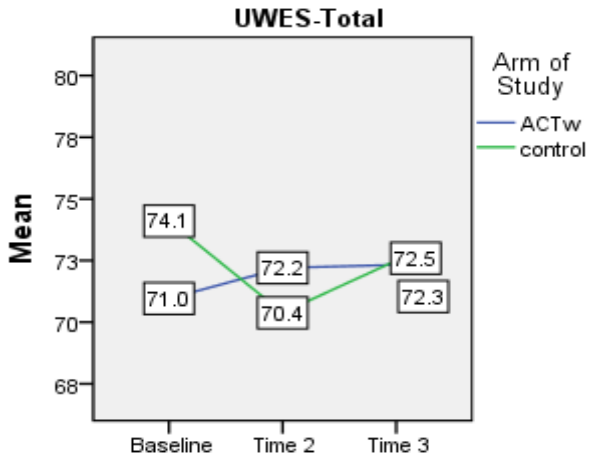


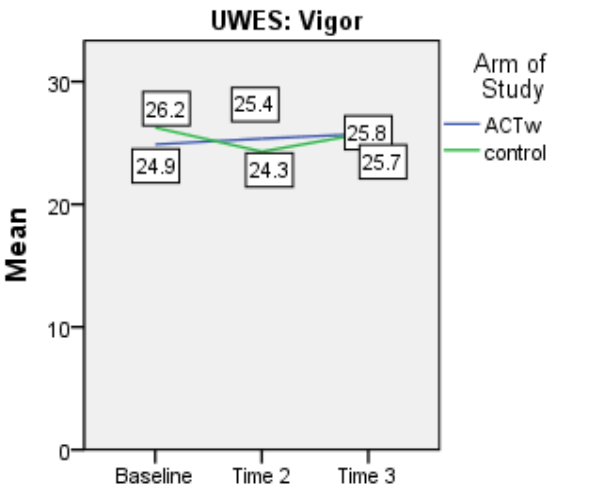
*Time F(2,86)=8.781, p = .001

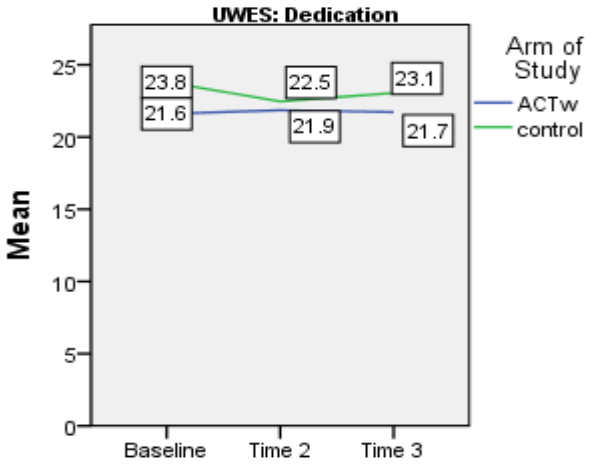


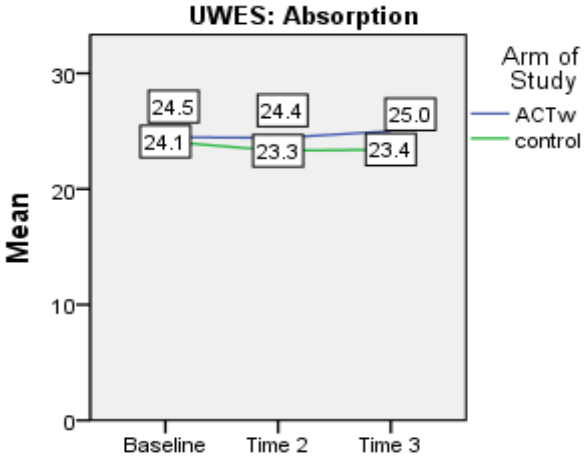
*Time F (2,86) = 7.906, p = 0.001

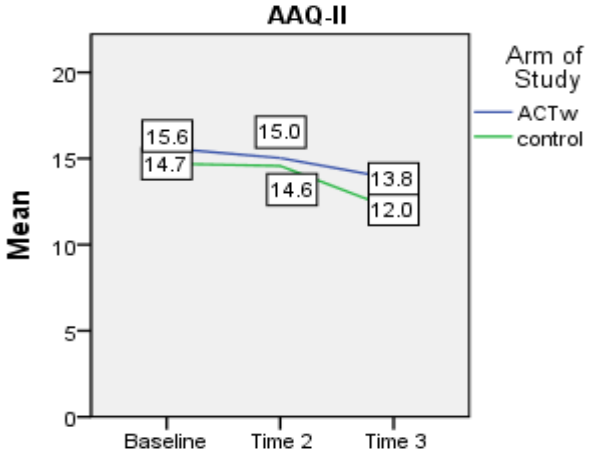












***Time F (2,86) = 5.090, p = 0.011**

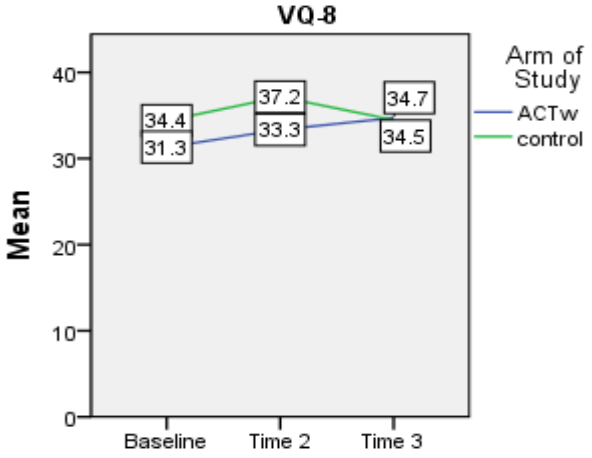


Table 4: η_p^2 for the time x arm of study interaction for outcome and therapy-specific measures

Outcome measures	**η_p^2**
MOAQ-JSS	.07
GHQ-12	.04
HADS-A	.03
HADS-D	.01
UWES total	.05
Vigor	.08
Dedication	.05
Therapy-specific measures	**η_p^2**
Absorption	.02
AAQ-II	.01
VQ-8	.04

Notes: η_p^2 = partial eta squared; Small effect = 0.01, Medium = 0.06, Large = 0.14 (Cohen, 1988); MOAQ-JSS = Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale; GHQ-12 = General Health Questionnaire; HADS = Hospital Anxiety and Depression Scale; UWES-17 = Utrecht Work Engagement Scale; AAQ-II = Acceptance and Action Questionnaire; VQ-8 = Valuing Questionnaire.

Table 5: Correlations between outcome and therapy-specific measures at baseline

		Therapy-specific measures	
Outcome measures		**AAQ-II**	**VQ-***
MOAQ-JSS		**.64*** **	**-.54*** **
GHQ-12		**.56*** **	**-.64*** **
HADS	**Anxiety**	.35**	-.38**
	Depression	.35**	**-.50*** **
UWES-17	**Total**	-.29*	**.49*** **
	Vigor	-.35**	**.57*** **
	Dedication	**-.41*** **	**.54*** **
	Absorption	-.09	.16

*correlation significant at 0.05 level (1 tailed) ** correlation significant at 0.01 level (1 tailed)
***correlation significant at 0.003 (Bonferroni correction)

Correlations between Time 1 – Time 3 changes in outcome and therapy-specific measures

		Therapy-specific measures	
Outcome Variables		**AAQ-II**	**VQ-8**
MOAQ-JSS		.2	-.14
GHQ-12		.29*	**-.44*** **
HADS	**Anxiety**	.10	-.35**
	Depression	.39**	**-.44*** **
UWES-17	**Total**	-.24	**.52*** **
	Vigor	-.15	**.59*** **
	Dedication	-.3*	**.51*** **
	Absorption	-.22	**.43*** **

*correlation significant at 0.05 level (1 tailed) ** correlation significant at 0.01 level (1 tailed)
***correlation significant at 0.003 (Bonferroni correction)

Notes: MOAQ-JSS = Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale; GHQ-12 = General Health Questionnaire; HADS = Hospital Anxiety and Depression Scale; UWES-17 = Utrecht Work Engagement Scale; AAQ-II = Acceptance and Action Questionnaire; VQ-8 = Valuing Questionnaire.

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CHAPTER 3: ADVANCED CLINICAL PRACTICE 1

REFLECTIVE CRITICAL ACCOUNT

Reflection on Communication and Clinical Practice: Practicing Mindfulness for Two.

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Declaration of conflicts of interest: none

Abstract

This reflective account focuses on clinical practice and communication. The learning experiences discussed have played a pivotal role in my development as a clinician and reflection has provided me with insight into my clinical practice. My experience to date has led to me building confidence, becoming more autonomous as a clinician, gaining a greater understanding of my learning style and allowing me to fully consider my communication style with patients and colleagues. In addition, these experiences are invaluable in my future practice. I reflect on my progress over the last three years, identifying transitions made using the Integrated Developmental Model (IDM) (Stoltenberg, McNeill, and Delworth, 1998). I also discuss implementing a new therapy in a new service and draw parallels with starting my placement in first year. In addition, I reflect on my integration of mindfulness into clinical practice. I convey two specific examples utilising the Gibbs Model of Reflection (1988). I discuss the importance of being mindful of one's own personal experiences and the importance of being aware of acceptance difficulties I have had as a therapist. I consider the positive consequences of being more mindful and identify how this can lead to being a more competent practitioner. Specifically, being more mindful allows one to be more fully aware of the present moment and commit to appropriate action. Further reflection critiques the reflections model utilised and allows me to consider my experiences idiosyncratically. I consider relevant theoretical, clinical and professional documents which aid reflection on wider issues relevant to the professional development of a Clinical Psychologist. Specifically, I consider interpersonal functioning and outline the importance for Psychologists to be active, autonomous and responsible in implementing a more mindful approach.

CHAPTER 4: ADVANCED CLINICAL PRACTICE 1

REFLECTIVE CRITICAL ACCOUNT

Integrating new knowledge into clinical practice and experiencing the Role of a Trainer.

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Declaration of conflicts of interest: none

Abstract

This reflective account focuses on clinical practice and training. The learning experiences discussed have played a pivotal role in my personal development, and my development as a clinician. Working in a dynamic trauma service has afforded me the opportunity to build on my knowledge base, specifically in relation to, violence against women, gender analysis and 'intersectionality'. I reflect on the acquisition of this new knowledge utilising the Rolfe (2001) Model for Reflective Practice. I consider the importance of the integration of this new knowledge in formulation, training and consultancy. While reflecting on this experience, I consider the impact on my future practice. I also consider the impact of my stage of training on this experience, utilising the Integrated Developmental Model (IDM) (Stoltenberg, McNeill & Delworth, 1998). In addition, I define the experience I have had with training staff utilising the Boud, Keogh and Walker Model of reflection (1985). I demarcate how this skill has developed over my training, with me initially assisting others to latterly taking a lead role. I consider how this experience has allowed me to build confidence, becoming more autonomous as a clinician and gain a greater understanding of my learning style. I re-iterate the importance of being mindful of one's own personal experiences and the importance of being aware of acceptance difficulties I have had as a therapist. Further reflection critiques the models utilised and allows me to consider my experiences idiosyncratically. I consider BPS and HCPC best practice guidelines to identify the skills I am developing as core competencies within Psychology. Furthermore, these guidelines aid reflection on wider issues relevant to the professional development of a Clinical Psychologist. Specifically I consider the importance of integrating information for formulation and consultation and consider the evolving role that Psychology has in training others.

Appendix 1.1: Submission Requirements for Clinical Psychological Review

CLINICAL PSYCHOLOGY REVIEW

AUTHOR INFORMATION PACK

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DESCRIPTION

Clinical Psychology Review publishes substantive reviews of topics germane to **clinical psychology.** Papers cover diverse issues including: psychopathology, psychotherapy, behavior therapy, cognition and cognitive therapies, behavioral medicine, community mental health, assessment, and child development. Papers should be cutting edge and advance the science and/or practice of clinical psychology. Reviews on other topics, such as psychophysiology, learning therapy, experimental psychopathology, and social psychology often appear if they have a clear relationship to research or practice in **clinical psychology.** Integrative literature reviews and summary reports of innovative ongoing clinical research programs are also sometimes published. Reports on individual research studies and theoretical treatises or clinical guides without an empirical base are not appropriate.

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Appendix 1.2: The Cochrane Collaboration Tool for Assessing 'Risk of Bias'

Domain	Support for judgement	Review authors' judgement
Selection bias: biased allocation to treatment		
Random sequence generation.	Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups.	Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence.
Allocation concealment.	Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen in advance of, or during, enrolment.	Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment.
Performance bias: bias due to knowledge of the allocated interventions by participants and personnel		
Other: Fidelity of Intervention	Consider intervention utilised, description of this intervention, protocol/programme used, experience of trainer and whether programme integrity was measured in any way. (Agreed with supervisor).	A potential source of bias related to the specific study design used.
Blinding of participants and personnel	Describe all measures used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.	Performance bias due to knowledge of the allocated interventions by participants and personnel during the study.
Detection bias: bias due to the knowledge of allocated interventions by outcome assessors.		
Blinding of outcome assessment	Describe all measures used, if any, to blind outcome assessors from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.	Detection bias due to knowledge of the allocated interventions by outcome assessors.
Attrition bias: bias due to amount, nature of handling of incomplete outcome data.		
Incomplete outcome data	Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomized participants), reasons for attrition/exclusions where reported, and any re-inclusions in analyses performed by the review authors.	Attrition bias due to amount, nature or handling of incomplete outcome data.
Reporting bias: bias due to selective outcome reporting.		
Selective reporting.	State how the possibility of selective outcome reporting was examined by the review authors, and what was found.	Reporting bias due to selective outcome reporting.
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Appendix 1.3: Criteria for Judging Risk of Bias

RANDOM SEQUENCE GENERATION: **Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence.**	
Criteria for a judgement of 'Low risk' of bias.	The investigators describe a random component in the sequence generation process such as: • Referring to a random number table; • Using a computer random number generator; • Coin tossing; • Shuffling cards or envelopes; • Throwing dice; • Drawing of lots; • Minimization*. *Minimization may be implemented without a random element, and this is considered to be equivalent to being random.
Criteria for the judgement of 'High risk' of bias.	The investigators describe a non-random component in the sequence generation process. Usually, the description would involve some systematic, non-random approach, for example: • Sequence generated by odd or even date of birth; • Sequence generated by some rule based on date (or day) of admission; • Sequence generated by some rule based on hospital or clinic record number. Other non-random approaches happen much less frequently than the systematic approaches mentioned above and tend to be obvious. They usually involve judgement or some method of non-random categorization of participants, for example: • Allocation by judgement of the clinician; • Allocation by preference of the participant; • Allocation based on the results of a laboratory test or a series of tests; • Allocation by availability of the intervention.
Criteria for the judgement of 'Unclear risk' of bias.	Insufficient information about the sequence generation process to permit judgement of 'Low risk' or 'High risk'.
ALLOCATION CONCEALMENT: Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment.	
Criteria for a judgement of 'Low risk' of bias.	Participants and investigators enrolling participants could not foresee assignment because one of the following, or an equivalent method, was used to conceal allocation: • Central allocation (including telephone, web-based and pharmacy-controlled randomization); • Sequentially numbered drug containers of identical appearance; • Sequentially numbered, opaque, sealed envelopes.
Criteria for the judgement of 'High	Participants or investigators enrolling participants could possibly foresee assignments and thus introduce selection bias, such as

risk' of bias.	allocation based on: • Using an open random allocation schedule (e.g. a list of random numbers); • Assignment envelopes were used without appropriate safeguards (e.g. if envelopes were unsealed or non-opaque or not sequentially numbered); • Alternation or rotation; • Date of birth; • Case record number; • Any other explicitly unconcealed procedure.
Criteria for the judgement of 'Unclear risk' of bias.	Insufficient information to permit judgement of 'Low risk' or 'High risk'. This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgement – for example if the use of assignment envelopes is described, but it remains unclear whether envelopes were sequentially numbered, opaque and sealed.
BLINDING OF PARTICIPANTS AND PERSONNEL: **Performance bias due to knowledge of the allocated interventions by participants and personnel during the study.**	
Criteria for a judgement of 'Low risk' of bias.	Any one of the following: • No blinding or incomplete blinding, but the review authors judge that the outcome is not likely to be influenced by lack of blinding; • Blinding of participants and key study personnel ensured, and unlikely that the blinding could have been broken.
Criteria for the judgement of 'High risk' of bias.	Any one of the following: • No blinding or incomplete blinding, and the outcome is likely to be influenced by lack of blinding; • Blinding of key study participants and personnel attempted, but likely that the blinding could have been broken, and the outcome is likely to be influenced by lack of blinding.
Criteria for the judgement of 'Unclear risk' of bias.	Any one of the following: • Insufficient information to permit judgement of 'Low risk' or 'High risk'; • The study did not address this outcome.
BLINDING OF OUTCOME ASSESSMENT: **Detection bias due to knowledge of the allocated interventions by outcome assessors.**	
Criteria for a judgement of 'Low risk' of bias.	Any one of the following: • No blinding of outcome assessment, but the review authors judge that the outcome measurement is not likely to be influenced by lack of blinding; • Blinding of outcome assessment ensured, and unlikely that the blinding could have been broken.
Criteria for the judgement of 'High risk' of bias.	Any one of the following: • No blinding of outcome assessment, and the outcome measurement is likely to be influenced by lack of blinding; • Blinding of outcome assessment, but likely that the blinding could have been broken and the outcome measurement are

	likely to be influenced by lack of blinding.
Criteria for the judgement of 'Unclear risk' of bias.	Any one of the following: • Insufficient information to permit judgement of 'Low risk' or 'High risk'; • The study did not address this outcome.
INCOMPLETE OUTCOME DATA : Attrition bias due to amount, nature or handling of incomplete outcome data.	
Criteria for a judgement of 'Low risk' of bias.	Any one of the following: • No missing outcome data; • Reasons for missing outcome data unlikely to be related to true outcome (for survival data, censoring unlikely to be introducing bias); • Missing outcome data balanced in numbers across intervention groups, with similar reasons for missing data across groups; • For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk not enough to have a clinically relevant impact on the intervention effect estimate; • For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes not enough to have a clinically relevant impact on observed effect size; • Missing data have been imputed using appropriate methods.
Criteria for the judgement of 'High risk' of bias.	Any one of the following: • Reason for missing outcome data likely to be related to true outcome, with either imbalance in numbers or reasons for missing data across intervention groups; • For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk enough to induce clinically relevant bias in intervention effect estimate; • For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes enough to induce clinically relevant bias in observed effect size; • 'As-treated' analysis done with substantial departure of the intervention received from that assigned at randomization; • Potentially inappropriate application of simple imputation.
Criteria for the judgement of 'Unclear risk' of bias.	Any one of the following: • Insufficient reporting of attrition/exclusions to permit judgement of 'Low risk' or 'High risk' (e.g. number randomized not stated, no reasons for missing data provided); • The study did not address this outcome.
SELECTIVE REPORTING: Reporting bias due to selective outcome reporting.	
Criteria for a judgement of 'Low risk' of bias.	Any of the following: • The study protocol is available and all of the study's pre-specified (primary and secondary) outcomes that are of interest in the review have been reported in the pre-specified way;

	• The study protocol is not available but it is clear that the published reports include all expected outcomes, including those that were pre-specified (convincing text of this nature may be uncommon).
Criteria for the judgement of 'High risk' of bias.	Any one of the following: • Not all of the study's pre-specified primary outcomes have been reported; • One or more primary outcomes is reported using measurements, analysis methods or subsets of the data (e.g. subscales) that were not pre-specified; • One or more reported primary outcomes were not pre-specified (unless clear justification for their reporting is provided, such as an unexpected adverse effect); • One or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis; • The study report fails to include results for a key outcome that would be expected to have been reported for such a study.
Criteria for the judgement of 'Unclear risk' of bias.	Insufficient information to permit judgement of 'Low risk' or 'High risk'. It is likely that the majority of studies will fall into this category.
OTHER BIAS: Bias due to problems not covered elsewhere in the table.	
Criteria for a judgement of 'Low risk' of bias.	The study appears to be free of other sources of bias.
Criteria for the judgement of 'High risk' of bias.	There is at least one important risk of bias. For example, the study: • Had a potential source of bias related to the specific study design used; or • Has been claimed to have been fraudulent; or • Had some other problem.
Criteria for the judgement of 'Unclear risk' of bias.	There may be a risk of bias, but there is either: • Insufficient information to assess whether an important risk of bias exists; or • Insufficient rationale or evidence that an identified problem will introduce bias.

App 2.1: Submission Requirements for the Journal of Contextual Behavioral Science

JOURNAL OF CONTEXTUAL BEHAVIORAL SCIENCE

AUTHOR INFORMATION PACK

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DESCRIPTION

The *Journal of Contextual Behavioral Science* is the official journal of the Association for Contextual Behavioral Science (ACBS). Contextual Behavioral Science is a systematic and pragmatic approach to the understanding of **behavior**, the solution of human problems, and the promotion of human growth and development. Contextual Behavioral Science uses functional principles and theories to analyze and modify action embedded in its historical and situational context. The goal is to predict and influence behavior, with precision, scope, and depth, across all behavioral domains and all levels of analysis, so as to help create a **behavioural science** that is more adequate to the challenge of the human condition. *JCBS* welcomes **contextual behavioral analyses** of phenomena that are relevant to the aims and scope of the society's mission, which is to change behavior at an individual or cultural level, to alleviate human suffering, and to advance human wellbeing. *JCBS* is also a strategic approach to the analysis of human behavior that proposes the need for a multi-level (e.g. social factors, neurological factors, behavioral factors) and multi-method (e.g., time series analyses, cross-sectional, experimental…) exploration of contextual and manipulable variables relevant to the prediction and influence of **human behavior.** In addition it places a strong emphasis in theory development and the promotion of effective practices that link back to scientific principles. The journal considers papers relevant to a contextual behavioral approach include empirical studies (without topical restriction - e.g., clinical psychology, psychopathology, education, organizational psychology, etc.), reviews (systematic reviews and meta-analyses are preferred), and conceptual and philosophical papers on contextual behavioral science. We are particularly interested in papers emphasizing the study of core behavioral processes that are relevant to a broad range of human problems, and thus not limited to certain populations. Conceptual papers selected for publication may address a broad range of topics but generally will focus on contextual and functional variables or the philosophical analysis of contextual behavioral science. Papers that challenge a contextual behavioural science approach are always welcome. Papers bridging different approaches (e.g., connecting behavioral approaches with cognitive views; or neurocognitive psychology; or evolutionary science) are particularly encouraged. The journal publishes papers written by researchers, practitioners, and theoreticians from different intellectual traditions. What is distinctive is not a narrowly defined theory or set of applied methods but whether the methodology, conceptualization, or strategy employed is relevant to a contextual
behavioral approach.

EDITORIAL BOARD

GUIDE FOR AUTHORS

Types of article

All manuscripts must clearly and explicitly be of relevance to CBS. You may find the JCBS article "Contextual Behavioral Science: creating a science more adequate to the challenge of the human condition" helpful in assessing whether your manuscript is likely to be of interest to readers of this journal.

Articles should fall into one of seven categories:
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2. Brief empirical reports (up to 3000 words)
3. Review articles (up to 10,000 words)
4. Conceptual articles (up to 6000 words)
5. In practice (up to 3000 words)
6. Practical innovations (up to 3000 words)
7. Professional interest briefs (up to 3000 words)

Word limits exclude references, tables and figures but include the abstract

1. Empirical research. JCBS welcomes manuscripts across a breadth of domains from basic behavioral science to clinical trials. Research concerning the measurement and testing of process of change is particularly welcome. Potential methodologies include but are not limited to: randomized controlled trials, single case experimental designs, cross-sectional and prospective cohort studies, mixed-methods designs, small scale analog studies. Papers reporting null findings are also welcome if their methodology is sound and their power sufficient. Authors of such papers will need to emphasize the implications of their findings for future research and practice.

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Manuscripts should provide both clear insights for new practitioners as well as stating the questions that remain to be answered by future research.

6. Practical innovations. Manuscripts in this section seek to apply the findings and applications of CBS to under-studied, under-served or novel areas. The scope of these manuscripts is limited only by the journal's broad mission: creating a science more adequate to the challenge of the human condition.

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The following list will be useful during the final checking of an article prior to sending it to the

journal for review. Please consult this Guide for Authors for further details of any item.
Ensure that the following items are present:
One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address
• Phone numbers
All necessary files have been uploaded, and contain:
• Keywords
• All figure captions
• All tables (including title, description, footnotes)
Further considerations
• Manuscript has been 'spell-checked' and 'grammar-checked'
• References are in the correct format for this journal
• All references mentioned in the Reference list are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Web)
• Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print, or to be reproduced in color on the Web (free of charge) and in black-and-white in print
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http://dx.doi.org/10.1016/j.physletb.2010.09.059
When you use a DOI to create links to documents on the web, the DOIs are guaranteed never to change.

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App 2.2: Recruitment Poster

University of Glasgow | College of Medical, Veterinary & Life Sciences

NHS SCOTLAND

ACT at WORK

ACCEPTANCE AND COMMITMENT TRAINING

PARTICIPANTS NEEDED

Consistent with the Healthy Working Lives initiative we are exploring the possibility of piloting ACT: at work, a customised training programme, to help promote well-being in the workplace.

We are looking for mental health staff working in NHS Lanarkshire to volunteer to take part.

Research has shown ACT can:

- Reduce worker stress
- Improve mental health
- Optimise learning and performance
- Facilitate trust and openness

As a participant in this study, you would be asked to attend training sessions and complete questionnaires. Your participation would involve *3* sessions, each of which is approximately *3* hours. **Your employer will allocate time within your shift to complete this training.**

For more information or to volunteer for this study, please contact:

Kirsten Maclean (Trainee Clinical Psychologist)
Mobile: 07900954436
Email: *k.maclean1@nhs.net*

University of Glasgow | College of Medical, Veterinary & Life Sciences

NHS SCOTLAND

Research Participant Information Sheet

Study Title: ACT at Work: Feasibility Study of an Acceptance Based Intervention for Well-being in the Work Place.

My name is Kirsten Maclean. I work here in NHS Lanarkshire as a Trainee Clinical Psychologist. I have particular interests in Acceptance and Commitment Training (ACT) and staff well-being and I would like to invite you to take part in a research study I am conducting.

Please note that you do not have to participate in this study. If you wish to take part, you need to understand why the research is being done and what it would involve for you.

Please take the time to read the following information carefully. Talk to others about the study if you wish. Feel free to ask me if there is anything that is not clear. Please ask if you would like more information. Take time to decide whether you wish to take part.

What is the purpose of the Study?

The Scottish Centre for Healthy Working Lives introduced the Healthy Working Lives (HWL) awards programme to help exemplar employers understand, protect and improve the health of their employees. The Health Works: A Review of the Scottish Government's Healthy Working Lives Strategy (Scottish Government, 2009) document, on which the awards are based, commits public sector bodies to becoming employers by obtaining HWL awards.

Consistent with the Healthy Working Lives initiative we are exploring the possibility of piloting the use of a technique called Acceptance and Commitment Training to help promote mental health and well-being in the workplace.

Firstly... it may be useful to explain what Acceptance and Commitment Training is.

ACT aims to teach us to accept what is out with our personal control and commit to take action that enriches our life. Work-based ACT has been shown to have beneficial effects on mental health, occupational constraints, learning at work and propensity to innovate (Bond and Bunce, 2000; Flaxman and Bond, 2010).

How does ACT work?

ACT teaches us skills to handle painful thoughts and feelings effectively, in such as way that they have less impact and influence – these are known as mindfulness skills. It also helps us to clarify what is truly important and meaningful to us – that is, clarify our values – and use that knowledge to guide, inspire, and motivate us to set goals and take action that enriches our life.

Why have you been invited to participate in the study?

The mental health and well-being of all staff is paramount. In the first instance, we are asking **ALL** staff working in certain targeted services in NHS Lanarkshire to take part.

Do I have to take part?

NO. It is up to you to decide. I will describe the study by going through this information sheet. You will also receive your own copy. If you agree to take part, I will ask you to sign a consent form to show you have agreed to take part. Your participation would be greatly appreciated. However, please understand you do not have to take part. You are free to withdraw at any time. You do not have to give a reason. This will not affect your current or future employment within the NHS.

What will happen to me if I take part?
Once we have ascertained who would like to part in the study, you will be asked to sign a consent form. You will be given a copy and a signed consent form to keep.

Then, you will be allocated certain dates to participate in the Acceptance and Commitment Training. ACT at Work aims to teach people the following psychologically flexible strategies: cognitive defusion (i.e. observing the automatic and programmed nature of thinking); the acceptance of, rather than the avoidance of challenging events and associated private experiences (e.g. anxiety); mindful contact with the present moment; and the ability to define values and engage in actions that are in keeping with those values.

Training will be delivered, in a group format (approximately 8-10 staff), by a Trainee Clinical Psychologist and a Clinical Psychologist. In total there will be three sessions to attend, each taking three hours. The first two groups are held a week apart, and then the 3rd group follows on a month later. Groups will be held in a central location.

Staff members will be asked to complete questionnaires at different stages. At first they will be asked to complete pre treatment questionnaires one week before the workshop commences. Follow up questionnaires will be conducted before the third session and one month after the third session. In addition, we will contact Human Resources to gain information about your absence record. We will only be collecting information about the number of times you may have been off in the two month period prior to your involvement in the study and the two months after. We will not have access to the reason why you were off as this is confidential information.

Some staff members may be asked to participate in an interview with the researcher to elicit qualitative feedback about what they took from the workshops and how this has impacted on them. This will be done in a focus group format. It will last about an hour.
Sessions will be audio-recorded. This is so an ACT expert can verify adherence and competence of facilitators and their application of the ACT at work protocol. The audio-tape is out of view, but if at any point it makes you feel uncomfortable, just tell me and I will stop it. Following verification, all copies of the audio will be destroyed.

Risks and Benefits of Taking Part?
I cannot promise this training will help you. **However,** taking part in this pilot study does provide access to training and support systems. In addition, previous ACT research has shown it can:

* Reduce worker stress
* Improve mental health
* Optimise learning and performance
* Facilitate trust and openness

Some people may not like to work in a group setting. However, nobody has to divulge any personal information and any information shared will be kept confidential.

What will happen if I do not want to carry on with the study?
You can stop at any time

This training is completely voluntary. Individuals have the **right to withdraw at any point** in the process.

What if there is a problem?
Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. Detailed information follows.

Complaints
If you have concerns about any aspect of this study, please contact myself or the chief investigator of this research. Contact details follow.

Will taking part in this study be kept confidential?
Your confidentiality will be safeguarded during and after the study. All the information you provide in questionnaires during the course of the research will be kept strictly confidential. My supervisor looks at this information to make sure the study is being carried out correctly. We all have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

The information you complete in the questionnaires will have your personal details removed, so that you cannot be recognised. The group sessions and focus group interview will be recorded on a Dictaphone. However, I will only share this information with the chief investigator who is bound by the same rules and regulations as I am). I will also record, process and store confidential information in a way to avoid disclosure (in line with Data Protection, 1998).

Breach of Confidentiality
All research staff involved in this project are bound by the NHS Lanarkshire rules on Confidentiality.

What will happen to the results of the research study?
The results of the research will be written up in a report. If you wish, you can receive a copy of this report. Some of the information you give will be used in the report but no one will know it comes from you, as it will be anonymous.

Who has reviewed the study?
The research has been reviewed and approved by Lanarkshire R and D and Glasgow University Ethics. The methodology has also been approved by Academic staff in Mental Health and Well-being at the University of Glasgow.

Further information and Contact Details
As I am completing my clinical doctorate at Glasgow University, a piece of research must be completed in order to fulfil course requirements. If you wish to know any more information about my role or about the study, contact details are;

Kirsten Maclean,
Trainee Clinical Psychologist,
University of Glasgow
1st Floor, Administration Building
Gartnavel Royal Hospital,
1055 Great Western Road,
Glasgow.
G12 OXH.
E-mail: k.maclean1@nhs.net

Dr Ross White (Chief Investigator of Research)
University Teacher
University of Glasgow
1st Floor, Administration Building
Gartnavel Royal Hospital,
1055 Great Western Road,
Glasgow.
G12 OXH.

App 2.4: Research Participant Consent Form. Version 4: January 2013

University of Glasgow | College of Medical, Veterinary & Life Sciences

NHS SCOTLAND

Study Number
Participant Identification number for this trial:

CONSENT FORM

Title of Project: ACT at Work: Feasibility Study of an Acceptance Based Intervention for Well-being in the Work Place.

Name of researcher: Kirsten Maclean

	please initial box
1. I confirm that I have read and understand the information sheet (version 4) for the above study.	
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
3. I understand that my participation is voluntary and that I am free to withdraw at any time without given any reason, without my current or future employment being affected.	
4. I understand that information from the questionnaires I complete will be kept strictly confidential, and any information about me will have my personal details removed so that I cannot be recognised.	
5. I consent to researchers having access to my absence rate over two specific time periods: two months prior to and two months immediately after participation in the study.	
6. I consent to audio recordings being made of the training sessions that I attend.	
7. I consent to the researcher sending questionnaires to my NHS email account for me to complete these electronically.	
8. I agree to take part in the above study	

Name of Participant	Date	Signature
Name of Person Taking Consent	Date	Signature

Appendix 2.5: Research Control Patient Information Sheet Version 1: January 2013

University of Glasgow | College of Medical, Veterinary & Life Sciences

NHS SCOTLAND

Research Control Participant Information Sheet

Study Title: ACT at Work: Feasibility Study of an Acceptance Based Intervention for Well-being in the Work Place.

My name is Kirsten Maclean. I work here in NHS Lanarkshire as a Trainee Clinical Psychologist. I have particular interests in Acceptance and Commitment Training (ACT) and staff well-being and I would like to invite you to take part in a research study I am conducting.

Please note that you do not have to participate in this study. If you wish to take part, you need to understand why the research is being done and what it would involve for you.

Please take the time to read the following information carefully. Talk to others about the study if you wish. Feel free to ask me if there is anything that is not clear. Please ask if you would like more information. Take time to decide whether you wish to take part.

What is the purpose of the Study?
The Scottish Centre for Healthy Working Lives introduced the Healthy Working Lives (HWL) awards programme to help exemplar employers understand, protect and improve the health of their employees. The Health Works: A Review of the Scottish Government's Healthy Working Lives Strategy (Scottish Government, 2009) document, on which the awards are based, commits public sector bodies to becoming employers by obtaining HWL awards.

Consistent with the Healthy Working Lives initiative we are exploring the possibility of piloting the use of a technique called Acceptance and Commitment Training to help promote mental health and well-being in the workplace.

Why have you been invited to participate in the study?

The mental health and well-being of all staff is paramount. In the first instance, we are asking **ALL** mental health staff working in certain targeted services in NHS Lanarkshire to take part. It is important to evaluate the efficacy of the ACT at Work Training. It is useful to compare those who participate in the training to those who are not participating in the training. Therefore, we need a control group. A control group will act as a comparison.

Do I have to take part?
NO. It is up to you to decide. I will describe the study by going through this information sheet. You will also receive your own copy. If you agree to take part, I will ask you to sign a consent form to show you have agreed to take part. Your participation would be greatly appreciated. However, please understand you do not have to take part. You are free to withdraw at any time. You do not have to give a reason. This will not affect your current or future employment within the NHS.

What will happen to me if I take part?
Once we have ascertained who would like to part in the study, you will be asked to sign a consent form. You will be given a copy and a signed consent form to keep.

As a control participant, you will be asked to complete questionnaires at different stages. You will be asked to complete the questionnaires at the same time as the individuals completing the group. Therefore, you will be asked to complete the questionnaires three times over 3 months. Questionnaires will take approximately 30-45 minutes to complete each time. Questionnaires can be sent to your work address (with an addressed envelope to return them) or sent electronically to your work e-mail. In addition, we will contact Human Resources to gain information about your absence record. We will only be collecting information about the number of times you may have been off in the two month period prior to your involvement in the study and the two months after. We will not have access to the reason why you were off as this is confidential information.

Risks and Benefits of Taking Part?
Participating in this study may not directly help you. However, taking part in this pilot research study will help evaluate the efficacy of ACT at Work Training on the mental health and well-being of mental health NHS staff. It will help ascertain whether this training has similar effects previous research has shown, i.e:

* Reduce worker stress
* Improve mental health
* Optimise learning and performance
* Facilitate trust and openness

Some people may not like to divulge information that questions in the questionnaires are pertaining to. However, all information shared will be kept confidential. Individual responses will also be anonymised.

What will happen if I do not want to carry on with the study?
You can stop at any time

This training is completely voluntary. Individuals have the **right to withdraw at any point** in the process.

What if there is a problem?
Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. Detailed information follows.

Complaints
If you have concerns about any aspect of this study, please contact myself or the chief investigator of this research. Contact details follow.

Will taking part in this study be kept confidential?
Your confidentiality will be safeguarded during and after the study. All the information you provide in questionnaires during the course of the research will be kept strictly confidential. My supervisor looks at this information to make sure the study is being carried out correctly. We all have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

The information you complete in the questionnaires will have your personal details removed, so that you cannot be recognised. I will only share this information with the chief investigator who is bound by the same rules and regulations as I am. I will also record, process and store confidential information in a way to avoid disclosure (in line with Data Protection, 1998).

Breach of Confidentiality
All research staff involved in this project are bound by the NHS Lanarkshire rules on Confidentiality.

What will happen to the results of the research study?
The results of the research will be written up in a report. If you wish, you can receive a copy of this report. Some of the information you give will be used in the report but no one will know it comes from you, as it will be anonymous.

Who has reviewed the study?
The research has been reviewed and approved by Lanarkshire R and D and Glasgow University Ethics. The methodology has also been approved by Academic staff in Mental Health and Well-being at the University of Glasgow.

Further information and Contact Details
As I am completing my clinical doctorate at Glasgow University, a piece of research must be completed in order to fulfil course requirements. If you wish to know any more information about my role or about the study, contact details are;

Kirsten Maclean,
Trainee Clinical Psychologist,
University of Glasgow
1st Floor, Administration Building
Gartnavel Royal Hospital,
1055 Great Western Road,
Glasgow.
G12 OXH.

E-mail: k.maclean1@nhs.net

Dr Ross White (Chief Investigator of Research)
University Teacher
University of Glasgow
1st Floor, Administration Building
Gartnavel Royal Hospital,
1055 Great Western Road,
Glasgow.
G12 OXH.

Appendix 2.6: Control Research Participant Consent Form, Version 1: January 2013.

University of Glasgow | College of Medical, Veterinary & Life Sciences

NHS SCOTLAND

Study Number
Patient Identification number for this trial:

CONSENT FORM

Title of Project: ACT at Work: Feasibility Study of an Acceptance Based Intervention for Well-being in the Work Place.

Name of researcher: Kirsten Maclean

	please initial box
1. I confirm that I have read and understand the information sheet indicating that I will act as a control participant for this study.	☐
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time without given any reason, without my current or future employment being affected.	☐
4. I understand that information from the questionnaires I complete will be kept strictly confidential, and any information about me will have my personal details removed so that I cannot be recognised.	☐
5. I consent to the researcher sending questionnaires to my NHS email account for me to complete these electronically.	☐
6. I agree to take part in the above study	☐

Name of Participant	Date	Signature
Name of Person Taking Consent	Date	Signature

App 2.7: Lanarkshire Research and Development Ethics

NHS Lanarkshire

Dr Ross White
University of Glasgow
Section of Psychological medicine
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow
Scotland
G12 0XH

R&D Department
Corporate Services Building
Monklands Hospital
Monkscourt Avenue
AIRDRIE
ML6 0JS

Date 04 April 2013
Enquiries to Lorraine Windsor, R&D Facilitator
Direct Line 01236 712459
Email Lorraine.Windsor@lanarkshire.scot.nhs.uk

Dear Dr White

Project title: A feasibility waiting list randomised control study, measuring the effect of Acceptance and Commitment Therapy (ACT) on work engagement, stress levels, and other process measures (psychological flexibility and value based living) in NHS Lanarkshire inpatient mental health staff.

R&D ID: L12049 **University Project number: 200120003**

MVLS College Ethics Committee Approval date: 02 April 2013

Local PI/Collaborator: Kirsten Maclean **NHSL Site(s): NHS Lanarkshire**

I am writing to you as Chief Investigator of the above study in reference to Amendment 1, February 2013 as approved in the MVLS College Ethics Approval letter dated 02 April 2013. Any documents approved are listed in Table 1, overleaf.

I confirm that your original R&D Management Approval has not been affected by this Amendment, and it can therefore be implemented within NHS Lanarkshire as detailed above.

I note that it is the responsibility of the Principal Investigator(s) to carry out any changes to be made to the project as a result.

Yours sincerely,

Raymond Hamill – Corporate R&D Manager
cc. – see overleaf

Table 1. Documents approved by the NHS REC as part of this amendment

☑ The following documents were approved as part of the amendment:

Document	Version	Date
Notice of Amendment	IRAS 3.4, Amendment 1. February 2013	
Appendix 1: Patient Information Sheet	4	January 2013
Appendix 2: Research Participant Consent Form	4	January 2013
Appendix 3: Recruitment Poster	4	January 2013
Appendix 4: Control Research Participant Consent Form	1	January 2013
Appendix 5: Research Control Patient Information Sheet	1	January 2013
Appendix 6: Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale (MOAQ:JSS)	1	
Appendix 7: General Health Questionnaire – 12	1	
Appendix 8: Hospital Anxiety and Depression Questionnaire	1	
Appendix 9: Utrecht Work Engagement Scale	1	
Appendix 10: Acceptance and Action Questionnaire	1	
Appendix 11: Valuing Questionnaire	1	
Appendix 12: Training Evaluation Form	1	

C.C.

NAME	TITLE	CONTACT ADDRESS	ROLE
Kirsten MacLean	Trainee Clinical Psychologist	Airbles Road Centre	Principal Investigator / Local Collaborator
Dr Debra Stuart	Research Governance Officer	University of Glasgow	Sponsor Contact
Mr Jim Wright	General Manager	Wishaw General Hospital	Named Contact

App 2.8: Glasgow University Ethics

04 October 2013
Dr Ross White
University Teacher
University of Glasgow

Dear Dr White

MVLS College Ethics Committee

Project Title: **ACT at work: acceptance based intervention for well-being at work**
Project No: 200120003

The College Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. They are happy therefore to approve the project, subject to the following conditions:

- The date on V4 of the Research Participant Consent Form appears incorrect and should be amended.
- The research should be carried out only on the sites, and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- If the study does not start within three years of the date of this letter, the project should be resubmitted.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

Professor William Martin
College Ethics Officer

Professor William Martin
Professor of Cardiovascular Pharmacology

R507B Level 5
School of Life Sciences
West Medical Building
Glasgow G12 8QQ Tel: 0141 330 4489
E-mail: William.Martin@glasgow.ac.uk

App 2.9: ACT_w Content

Session Number & Aims	Learning Objectives and Exercises
Session 1:	**To question the workability of popular coping strategies, undermine unhelpful coping mechanisms, introduce acceptance as an alternative strategy & allow practice of acceptance and mindfulness-focused exercises.**
Introduction, baseline measures, rapport building & setting the scene.	• Re-iterate that this is research i.e. highlight confidentiality agreement and freedom to withdraw. Reiterate training procedure (e.g. 3 × half days) & identify research design requires no discussion with other colleagues taking part in the study. • Attendance & questionnaires • Establish ground rules • Re-iteration of purpose i.e. awareness of issues faced by working population • Establish Participant hopes & expectations; manage these expectations specifically stating that this is training not therapy
Creative hopelessness	**What is Stress?** Consider the signs/symptoms of stress (i.e. discuss physical, mood, thinking, behaviours and organisational factors), and the causes (i.e. individual characteristics and work/organisational factors.) Whilst, re-iterating that workshops are not designed to change the individual or the work related sources of stress; rather, the focus is on changing how individuals react to these types of stressful events. **TAP analogy (Bond & Hayes, p. 122)** **Beginning ACT: Discuss how people deal with your unhappiness, anxieties, worries.....? (Bond & Hayes, p122/123)** Highlight that people try to eradicate this content (i.e. avoid, change, justify, rationalise, deny, ignore or tolerate). Introduce the concept of workability i.e. whether these techniques have worked. **Overarching point:** Emphasise listening to one's mind is not always effective in relieving the effects of stress, worry, unhappiness etc (nor helping in achieving the goals they would like to accomplish).
Control is the problem	**Control Agenda Excerpt (Bond & Hayes, 2002, p.124):** Solution is not deliberate control: the problem is control. Cannot control our thoughts and feelings or anything that happened under our skin, in our minds in our body. **Polygraph Exercise (Bond & Hayes, 2002, p.124.)**
Defusion/Acceptance	**Control Doesn't Work Explanation (Bond & Hayes, 2002, p.125).** **Clean Versus Dirty Discomfort (Bond & Hayes, 2002, p.126):** Clean discomfort is the discomfort that we all experience in our lives as a function of living. Dirty discomfort is emotional pain created by our efforts to control the normal, natural clean discomfort that we experience. **Introduction of Acceptance and Willingness – Quicksand Example**

	(Bond & Hayes, 2002, p.126): Acceptance and willingness, involves moving in the opposite direction, towards the pain, rather than away from it, towards the emotions, thoughts and feelings that we dislike. **Willingness Exercise 1: "Just Noticing" – Leaves on a stream (Bond & Hayes, 2002, p.126/7.)** **Exercise followed by inquiry i.e.** How did you find this exercise? How does this exercise relate to what we have been discussing? This exercise shows participants they can view/watch their thoughts and bodily sensations without having to alter them or stop them. The trainer notes the usefulness of this exercise when people start to feel stress. **Buying Thoughts:** Insight into the automaticity of thoughts. Link to personal histories and the things we think in particular situations. **Identify "Stress Buttons" (Bond & Hayes, 2002, p.127/8):** Indicate situations, thoughts, emotions, or sensations that cause stress. **Willingness Exercise 2: Face to Face (Bond & Hayes, 2002, p.128):** Exercise consists of simply looking at another person for about two minutes.
Homework Task and End Point	• Notice how cognitive avoidance, cognitive struggle, and cognitive fusion promote stress, when stress buttons are pressed. • Daily practice: 10 minutes doing the "just noticing" exercise. • Participants asked not to discuss info with colleagues i.e. session content or ideas discussed in it.
Session 2	**To further explore acceptance, and how lack of awareness and automatic thinking can cause internal struggles, to identify and record participants most important goals and values, and to highlight how acceptance and mindfulness facilitate values-based actions.**
Introduction	• Confidentiality and right to withdraw. • Homework discussion
Defusion/Acceptance	**Right Versus Wrong (Bond & Hayes, 2002, p.129):** Individuals have the ability to make life bigger, richer, less stressful –nothing has to change before that can start. You are not to blame for the stress of painful emotions that you feel, but you are responsible to how you respond to stressful situations. **But exercise (Bond & Hayes, 2002, p.130: awareness of the word "but"** and substitute it for the word, "and", because this switch may make you more sensitive to one of the ways that we get pulled into the struggle with ourselves that makes us more stressed. **The Observer Exercise (Bond & Hayes, 2002, p.131):** Followed with an inquiry. This exercise demonstrates, among other things, that you, the observer you, can take a direction in your work, in your life, regardless of what your thoughts and feelings are saying to you. Your observer you, the true you, can see what is there and still say "This is what I need I need to do to get where I want to go!" **The "Milk, Milk, Milk" Exercise (Bond & Hayes, 2002, p.132/3):**

	Remember while words can trigger fearful thoughts and feeling, they are, at the end of the day, just words just symbols of the fear, and not the fear itself, and sine they are just symbols, just holograms, why must they be resisted and fought? **The Tin Can Monster Exercise (Bond & Hayes, 2002, p.134/5):** Willingness is not an outcome, it is a process. Willingness is a choice to do something, and in that context, to have happen whatever it is that is going to happen. The exercise, is intended to help you give up the struggle with emotional discomfort and disturbing thoughts by dissembling them. It is also designed to give you the experience of the ebb and flow of willingness, to realise that it is not something that you will "get" and "have" forever.
Values-based action	**Letting go of the struggle, in order to achieve your values and goals:** Values discussion. Clarify what the trainee values for its own sake: what gives your life meaning**.** Followed by identifying a value that has been interfered by the struggles with stress. Then make a public commitment to letting go of the struggle that is getting in your way of achieving the values and goals that you have.
Homework	• Daily practice of tin can monster for a week, then weekly until next session, utilising, "stress buttons" material that you wrote down last week.
Session 3	**To further practice acceptance and mindfulness, discuss barrier and stumbling blocks to value-based actions, and troubleshoot any questions or issues participants have after practice these techniques over the last month.**
Introduction	• Recap • Confidentiality and Right to Withdraw • Homework discussion.
Practice willingness techniques, establish more value directed goals & address any questions participants may have. **Willingness as a values-based action**	**Willingness Exercise 1: "Just Noticing" – Leaves on a stream (Bond & Hayes, 2002, p.126/7):** Participants asked to reveal biggest hooks or internal events that they had a hard time letting go off. **The Tin Can Monster Exercise (Bond & Hayes, 2002, p.134/5):** Consider hooks given as material, elicit responses and answer questions. **Willingness Exercise 2: Face to Face (Bond & Hayes, 2002, p.128):** Comments and questions **Group Sharing Exercise:** discussion about how previous goal directed behaviour went and establish new goals. **The Observer Exercise (Bond & Hayes, 2002, p.131):** Comments and questions addressed. Participants are encouraged to continue to employ willingness exercises 3 times a week. Participants reminded acceptance is a process, not an end state; no one will reach it permanently. It is necessary, therefore, to be constantly mindful and aware that thoughts and feelings are just that; thoughts and feelings, and not the events that

	they represent (i.e. internal events are not to be taken literally).
Ending	• Thanks for participation • Remind about any further outcome measures • Encourage practiceof exercises • Remind participants not to discuss training with colleagues • Who to contact within the organisation should they have questions/issues • Facilitator contact details.

App 2.10: Valuing Questionnaire (VQ-8)

Name _____ Date:_____

VALUING QUESTIONNAIRE

Please read each statement carefully and then circle the number which best describes how much the statement was true for you DURING THE PAST WEEK, INCLUDING TODAY.

0 Not at all true	1	2	3	4	5	6 Completely true

1) It seemed like I was just 'going through the motions', rather than focusing on what was important to me	0	1	2	3	4	5	6	_	R
2) I continued to get better at being the kind of person I want to be	0	1	2	3	4	5	6	_	_
3) I made progress in the areas of my life I care most about	0	1	2	3	4	5	6	_	_
4) I tried to work towards important goals, but something always got in the way	0	1	2	3	4	5	6	_	R
5) Difficult thoughts, feelings or memories got in the way of what I really wanted to do	0	1	2	3	4	5	6	_	R
6) I was proud about how I lived my life	0	1	2	3	4	5	6	_	_
7) I was basically on "auto-pilot" most of the time	0	1	2	3	4	5	6	_	R
8) My behaviour was a good example of what I stand for in life	0	1	2	3	4	5	6	_	_
			Progress:					_	
			Obstruction:						_
			Total:						_

App 2.11: ACT_w Training Evaluation Form

Training Evaluation Form

Please take the time to read the following questions and tick one of the possible responses.

	Very Poor	Poor	Neutral	Good	Excellent
The room used for training was					

	Very Poor	Poor	Neutral	Good	Excellent
The group facilitators were					

	Too Little	Just right	Too much
The amount of information given was			

	Too Easy	At the right level	Too complicated
The information given was			

	Not useful	Slightly useful	Very Useful
Overall, I feel the training was			

	No	Not Sure	Yes
I would recommend this training to NHS colleagues			

Please answer the following questions.

Do you feel there was anything in the training that could be missed out?

Is there anything in the training you would like more off?

What part do you think was most helpful for you?

What part, if any, do you think was least useful for you?

Any other comments?

App 2.12: Major Research Proposal

Abstract

Background: Research suggests that 25% of health care professionals can experience 'burnout' (Da Silva & Menezes, 2008). Burn-out is the negative antithesis of the energy, involvement and efficacy that characterises work engagement (Maslach and Leiter, 1997). The NHS has a number of policies and targets to promote mental health and well-being for all staff. Despite these policies, no interventions which target mental health and well-being have been evaluated. Acceptance and Commitment Therapy (ACT) promotes psychological flexibility, which may promote sensitivity to, and contact with, contingencies of reinforcement that bear on chosen values making it useful in the work setting (Bond et al, 2006). Research highlights that ACT interventions can improve mental health, reduce worker stress (Bond and Bunce, 2000, Flaxman and Bond, 2010) and engender individuals to be more willing and able to learn and perform effectively (Bond et al, 2006).

Aim: Investigate the feasibility of using ACT to improve mental health and well-being and foster work engagement in NHS mental health staff.

Method: Mixed methods (qualitative and quantitative) will be used. A repeated measures design will be used. Staff will be recruited to take part in ACT at work (Bond and Hayes, 2002). Additional staff will also be recruited in order to act as a control group and will be assessed in parallel to the intervention group. ACT at work will be implemented in 3 x 3 hour sessions (two sessions on consecutive weeks and a third a month later). Psychometrics will be completed one week prior to the workshop. Follow up measures will be conducted before the third session and one month after. A mixed Factor ANOVA will be conducted to determine if there are significant differences between how individuals from the two groups (ACT vs Control group) change in levels of well-being and work engagement change from baseline to post treatment. Regression analyses will examine the potential meditational relationship that the process measures (psychological flexibility and value consistent behaviour) might play in changes in outcome measures (work engagement and stress). In addition, a qualitative arm will be undertaken. A sub-sample of staff participating in the research will be selected to participate in interviews with the researcher to elicit qualitative feedback. This will be done utilising a focus group format. Qualitative exploration, utilising Interpretative Phenomenological Analysis, will seek to establish the stressors (if any) present in the workplace, the staff's perception of the applicability of this intervention and their views on how acceptable the training was.

Applications: This feasibility study will assess the practical implementation and utilisation of ACT at Work on mental health staff, providing information for further research.

Introduction

Health and Well-Being

The 2009-10 NHS report for Scotland recorded a staff sickness rate of 4.75% equating to around 6500 staff on sick leave at any one time (NHS Scotland Chief Executive's Annual Report, 2009/10). The Scottish Government has identified the mental health and well-being of NHS staff as a priority area. Working in mental health settings presents particular challenges for health care professionals. They support individuals with enduring relapsing illness and high suicide risk, they are threatened and experience actual violence, they endure heavy workloads, lack legalistic frameworks and supervision, and there is often role conflict and ambiguity (Korkeila et al., 2003 and Edwards et al, 2000). Staff health and well-being services within the

NHS have been criticised as being reactive; responding to ill-health rather than actively promoting good health and well-being (NHS Health and Well-being, Final Report 2009). The Scottish Centre for Healthy Working Lives introduced the Healthy Working Lives (HWL) awards programme to help employers understand, protect and improve their employee's health. The Health Works: A Review of the Scottish Government's Healthy Working Lives Strategy (Scottish Government, 2009) document, on which the awards are based, commits public sector bodies to becoming exemplar employers by obtaining HWL awards. The Chief Executive's Letter (http://www.sehd.scot.nhs.uk/mels/CEL2012_01.pdf) outlines NHS Scotland's commitment to attaining HWL awards for all acute services; working to attain the Gold Award and the HWL Mental Health Commendation Award. To obtain the gold award, NHS boards are required to demonstrate that appropriate policy, training and support are in place to promote staff mental health. However, there has been no evaluation of interventions aimed at promoting mental health and well-being in NHS staff.

Burn-out

Burnout is recognised in individuals with occupations that have intense involvement with people who have psychological, social and/or physical problems (Maslach and Jackson, 1981). Burnout is a syndrome which has 3 dimensions; emotional exhaustion, feelings of cynicism and detachment and a sense of ineffectiveness and lack of accomplishment (Maslach, Schaufeli and Lieter, 2001). Research suggests that 25% of health-care workers experience 'burnout' (Da Silva & Menezes, 2008). Burnout is associated with high job turnover and absenteeism (Maslach and Jackson 1981 and Duchame, Knudsen and Roman, 2008). Of those who stay in employment there is a decrease in quality of care and service, lower productivity, reduced commitment to the job, negative impact on colleagues (Maslach et al, 2001), low morale (Maslach and Jackson, 1981, Cushway and Tyler, 1996) and poorer therapeutic rapport (Garner, 2006). In terms of health there is a link between burnout and personal distress i.e. physical exhaustion, insomnia, drug/alcohol use and marital/family problems (Maslach et al, 2001 and Maslach and Jackson, 1981).

Work Engagement

According to Maslach and Leiter (1997) burn-out is the negative antithesis of the energy, involvement, and efficacy that characterises work engagement. Work engagement has been defined as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption (Schaufeli, Salanova, González-Romá & Bakker, 2002). Work engagement is predictive of high levels of job performance, client satisfaction (Bakker et al., 2008) and financial return (Bakker et al, 2011). Bakker et al (2008) identified that employees who feel vital, strong and enthusiastic about their work, show better in-role and extra-role performance, resulting in better financial results and satisfied customers. Engaged workers tend to have an active coping style (Rothmann and Storm, 2003), believe they can face work demands (have high self efficacy), experience good outcomes in life (optimistic) and believe they can satisfy their needs by participating in their organisation role (organisational based self-esteem) (Xanthopoulou et al.,2007).

Current Programmes

Stress management training (SMT) has commonly been used to improve mental health in the workplace (Flaxman and Bond, 2010). These interventions provide a combination of cognitive restructuring, muscle relaxation and behavioural skills (i.e. problem solving). Reviews highlight that SMT has a moderate effect in improving employee health (Flaxman and Bond, 2011). However, SMT reviews often conclude by indicating the design and methodological limitations (Bunce, 1997). For instance, research shortcomings include short term evaluation periods, a restricted range and poor operationalization of outcome variables (Murphy, 1988). Furthermore, SMT studies fail to examine the psychological mechanisms which mediate change (Bunce, 1997). Bunce (1997) advocates that before one can design an SMT to achieve maximum effectiveness, a greater understanding of the mechanisms, or mediators, by which it helps people change is required. Research needs to identify the mediators of change to understand the circumstances in which an intervention is appropriate (Bunce, 1997).

Acceptance and Commitment Therapy (ACT)

ACT is a psychological intervention that uses acceptance and mindfulness exercises, together with commitment and behaviour change strategies, to increase psychological flexibility. Psychological flexibility involves contacting the present moment fully as a conscious human being, and based on what the situation affords, changing or persisting in behaviour in the service of chosen values (Flaxman and Bond, 2010). The use of ACT to promote psychological flexibility, has primarily been discussed in the context of mental health difficulties (Bond et al., 2006), however, there is a growing literature implying that psychological flexibility may promote sensitivity to, and contact with, contingencies of reinforcement that bear on chosen values, making it useful in the work setting (Bond et al, 2006). ACT aims to teach the following strategies: cognitive defusion (i.e. observing the arbitrary, automatic and programmed challenging events and the private experience they stimulate), mindfulness and conscious contact with the present moment, and the ability to define values and engage in actions that are consistent with those values.

Poor psychological acceptance predicts poor mental health and productivity across various work settings i.e. nursing, advertising, addiction counselling and civil service (Bond et al, 2006). Research highlights that ACT can improve mental health and reduce worker stress (Bond and Bunce, 2000, Flaxman and Bond, 2010). ACT engenders individuals to be more willing and able to learn and perform effectively (Bond et al, 2006). In addition, Hayes et al, (2004) documented that ACT can change attitudes, stereotypes, and facilitate trust and openness. Consistent with the ACT model, process analyses have demonstrated that increased psychological flexibility leads to better mental health, job performance and learning (Bond and Bunce, 2003; Flaxman and Bond, 2010). To date, no research has investigated whether there is an association between psychological flexibility and work engagement.

Aims and Hypotheses: Investigate the feasibility of using ACT to facilitate well-being and work engagement in NHS mental health staff.

Specifically,

- Primary Aim: Compared to control participants, individuals allocated to ACT will evidence a significant increase in work engagement across the duration of the trial
- Secondary Aim: Explorative investigation of the effect of ACT on stress levels.
- Tertiary Aim: Qualitative exploration of the stressors (if any) present in the workplace, the staff's perception of the applicability of this intervention and how acceptable they found the intervention.

The following hypotheses will be assessed utilising the PICO framework (Richardson et al., 1995):

1. Population: A group of NHS Lanarkshire (NHSL) mental health staff will be recruited
2. Intervention: A work-based ACT intervention will be acceptable to NHSL mental health staff.
3. Control: A group of NHSL mental health staff will be recruited as a control and followed up in parallel to the intervention group.
4. Outcomes: Changes in work engagement and stress levels are the outcome measures. Pre-post changes are predicted to be mediated by changes in psychological flexibility and value based living; hypothesised process measures.

Plan of Investigation

Participants: NHSL mental health staff will be asked to participate. Staff will be recruited with the co-operation of management. Staff will be recruited from participating services i.e. Learning Disability and staff who have been referred to the Occupational Health department at Lanarkshire NHS. Individuals who have volunteered will be allocated to ACT group.

Additional individuals will also be recruited to participate as a control group. The number of controls will match the number of individuals participating in the training. The age range of participants will be 18 – 65 years.

Inclusion and Exclusion Criteria: All occupational groups will be asked to participate (including administration staff). Exclusion criteria will include minimum time in post i.e. 3 months.

Recruitment Procedures

Approval and support for the research will be sought from Mental Health managers at NHSL. The research will be advertised using a number of modalities: posters in resource centres, information will be circulated via e-mail. In addition, the researcher will meet with occupational health staff to inform them of the study. The time frame of the study will be explicitly highlighted. These staff will provide information to all staff attending their service. Individuals will be able to contact researcher if interested to participate. Contact information will be available if staff wish to participate.

The researcher will attend team meetings and be available via e-mail and telephone to describe research and answer questions. A participant information sheet will be circulated to individuals interested and the researcher will meet with potential participants to gain informed consent. (Appendix 2).

Measures

Absenteeism: Absence rates for the two months before randomisation to treatment, and two months following the completion of the initial ACT intervention session.

Michigan Organizational Assessment Questionnaire: Job Satisfaction Subscale (MOAQ:JSS, Cummann et al., 1979) will be used to measure the individuals' intention to seek a new post. Internal consistency reliability is .84 and the mean test–retest reliability is .50 (Bowling and Hammond, 2008).

General Health Questionnaire (GHQ – 12; Goldberg and Williams, 1988) is a 12 item self-report scale measuring mental health. Respondents are asked to indicate whether they have recently experienced a range of common symptoms or distress. Cronbach alphas are 0.90 and 0.93 (Flaxman and Bond, 2011).

Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith, 1983) identifies caseness of anxiety disorders and depression. A higher score is indicative of anxiety or depression. Cronbach's alpha for HADS-A varied from .68 to .93 (mean .83) and for HADS-D from .67 to .90 (mean .82) (Bjelland, Dahl, Haug and Necklemann, 2001).

Utrecht Work Engagement Scale (UWES-9; Schaufeli & Bakker, 2003). This is a 9-item scale measuring vigour, dedication and absorption. Cronbach alphas varied between 0.82 and 0.86 (Seppela, Mauno, Feldt, Hakanen, Kinnunen, Tolvanen and Schaufeli, 2009).

Acceptance and Action Questionnaire (AAQ-II; Bond, Hayes, Baer, Carpenter, Guenole, Orcutt, Waltz and Zettle, 2011). The AAQ-II is a seven item scale which measures psychological flexibility. The mean alpha coefficient is 0.84 (0.78 - 0.88), and the 3- and 12-month test-retest reliability is 0.81 and 0.79 (Bond et al, 2011).

Valuing Questionnaire (VQ: 8 item; Davies and Smout, 2011). This measures the extent to which people think they have lived their values in the last week. Reliability data not published.

Training Evaluation Form: brief form compiled to gain feedback about the workshop.

Design

Initially, discussion will take place with Mental Health Managers from NHSL to permit staff involvement. Mixed methods (qualitative and quantitative) will be used. A repeated measures design will be used. Staff will be recruited to take part in ACT at work training (Bond and Hayes, 2002). Staff will also be recruited in order to act as a control group and will be assessed in parallel to the intervention group. Questionnaire information will only have individual's assigned number and will not have any distinguishable information such as their name.

ACT at Work aims to teach people the following psychologically flexible strategies: cognitive defusion (i.e. observing the arbitrary, automatic and programmed nature of thinking); the acceptance of, rather than the avoidance of challenging events and associated private experiences (e.g. anxiety); mindfulness and conscious contact with the present moment; and the ability to define values and engage in actions consistent with those values.

Pre measure questionnaires will be completed one week before the workshop commences Follow up measures will be conducted before the third session and one month after the third session. The control group will complete the follow up measures at the same time points as the ACT at Work group.

A sub-sample of individuals attending the training workshops will be selected to participate in interviews with the researcher to elicit qualitative feedback about what they took from the workshops and how this has impacted on them. This will be done in a focus group format. It will last about an hour; the researcher will prompt discussion with broad questions. Interpretative Phenomenological Analysis, which has its theoretical roots in phenomenology, hermeneutics and idiography (Smith, Flowers and Larkin, 2009). IPA is concerned with the detailed examination of personal lived experience, the meaning of the experience to participants and how participants make sense of that experience (Smith, 2011). Qualitative exploration will seek to establish the stressors (if any) present in the workplace, the staff's perception of the applicability of this intervention and their views on how acceptable the training was.

Research Procedures

ACT at work will be implemented by researcher Kirsten Maclean plus another therapist/researcher (Lanarkshire colleague), following a specific manualised protocol (Bond & Hayes, 2002). The ACT at Work group will implement 3 x 3 hour sessions (2 on consecutive weeks and the third a month later.) Allowing practice and troubleshooting problems in the final session. Groups will run over six months. Adherence and competence will be evaluated by an ACT expert.

A sub-sample of staff participating in the research will be selected to participate in interviews with the researcher to elicit qualitative feedback. This will be done in a focus group format lasting approximately an hour. The Focus Group will employ a semi-structured approach using topic guides, which will facilitate flexibility within the interview. A non-directive approach will be adopted by the interviewer, thus allowing the participants to address areas, they deem important. Prompts such as 'can you tell me more about that' will be used to encourage elaboration. The development of topic guides will follow the PICO framework noted above.

Interviews will be recorded and then transcribed and anonymised by the researcher.

Data Analysis

A mixed factor ANOVA will be conducted. This will determine whether there are significant differences between how individuals from the two groups (ACT vs Waiting List Control) change in the outcomes variables, work engagement (UWES-9) and Stress levels (GHQ-12),

across the three time points. Change scores on the outcome and process measures from time 1 to time 2 as well as from time 1 to time 3 will also be calculated and correlated with each other to determine associations between how the process and outcome measures change over time. Consistent with Baron & Kenny's (1986) methodology, regression analyses will be used to examine the potential meditational relationship that the process measures might play in changes in outcome measures.

Post-hoc analysis will ascertain the number of participants who were stressed at baseline and isolate these individuals to determine whether the individuals who were stressed at baseline and subsequently received ACT had a significantly greater change in work engagement and stress scores relative to the waiting list control participants who were stressed at baseline.

Interviews will be recorded and transcribed. Data may be utilised in project, or left for future research. IPA will be utilised to interpret the data. Transcribed interviews will be analysed using Interpretative Phenomenological Analysis. Inter-rater reliability will be verified by a NHS Lanarkshire (NHSL)colleague (Dr Nicola Cogan) with experience in IPA analysis. Focus Group transcripts will be analysed to ensure reliability of the analysis from the interview transcripts.

Justification of sample size

A sensitivity analysis of sample size requirement was completed, utilising a study by Lloyd et al (In Press). This study measured the effect of ACT at Work on stress levels and psychological flexibility. They measured levels of stress with the GHQ-12. This study documented a statistically significant reduction in stress ($\mu = 0.2526456$). G-power 3 software (Faul, 2010) was utilised and established that the following sample sizes would be required for the study to reach the following statistical power values (assuming $\alpha = 0.05$):

Power	0.80	0.85	0.90	0.95
Sample Size	34	38	44	54

Due to the possible high attrition rate (20%) 70 staff will be recruited to ensure optimum power for the study.

Important to remain mindful that this is a feasibility study and therefore focus will also be on any potential difficulties there may be in recruiting from NHSL.

Settings and Equipment

Research will be conducted in NHSL resource centres. A therapeutic room will be located for 8-10 individuals (approx. group size). This will be in a suitable location to participants (i.e. central). ACT at Work manualised protocol (Bond, F., & Hayes, S. C., 2002) will be utilised.

Health and Safety Issues

Researcher and Participant Safety Issues

Location and safety of room will be assessed to identify any risk factors for researcher and participants. The room selected will meet fire regulations.

Ethical Issues (including where submissions will be made)

Individuals may present elevated levels of stress. The researcher will work with NHSL occupational health to ensure all participants are aware of sources of support available within the organisation. If individuals present or divulge elevated levels of stress in the training session, they will be sign-posted to contact their GP.

Informed consent will be obtained prior to participation in the research. Participants' anonymity and confidentiality will be paramount. Confidentiality will be breached if anyone expressed harm to themselves or others. Individuals will be reminded that they can withdraw from the study at any point. It will be emphasised that participation, non-participation and withdrawal will not impact on their current/future employment. The research will gain ethical approval from NHSL and IRAS ethical committees.

Financial Issues
I personally funded an ACT course ($12^{th}/13^{th}$ November) = £180. No cost incurred for psychometrics.

Timetable
See attached.

Practical Applications
Findings will assess the utilisation of ACT at Work on mental health staff. This will be the first research to be conducted within NHS Scotland and a mental health profession. This feasibility study will provide information for further research.

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